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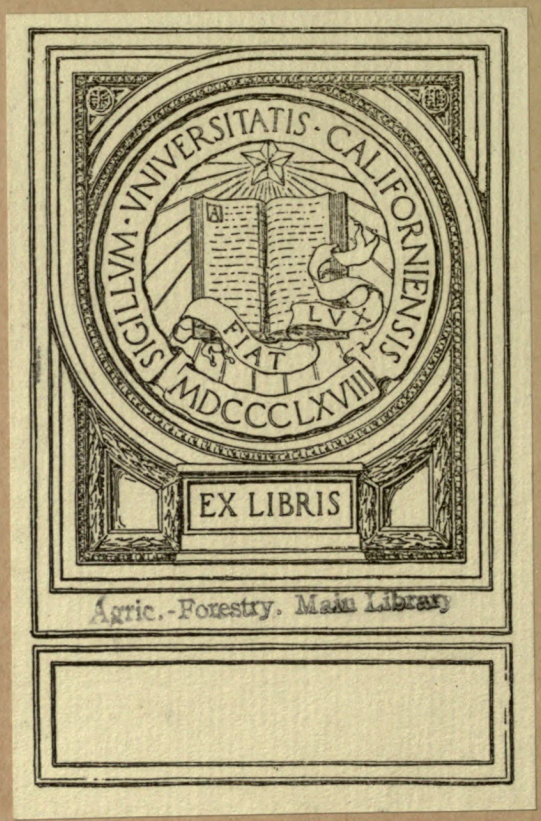
COPY FOR BINDING

FRAME CONSTRVCTION DETAILS



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Frame Construction Details

Univ. of California

Price, $1.00

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NATIONAL LUMBER MANUFACTURERS ASSOCIATION

750 Mc Cormick Building
Chicago, Illinois

TH2301
N3

Prepared by

Architectural and Building Code Service

R. S. WHITING, Architectural Engineer

R. G. KIMBELL, Assistant

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FOREWORD

THE purpose of these plates of Frame Construction Details is, to deal with practical problems arising in the construction of Frame Buildings; to serve as a guide to those engaged in actual construction work, to prospective builders, to architects, and to students of architecture and building construction in the preparation of drawings.

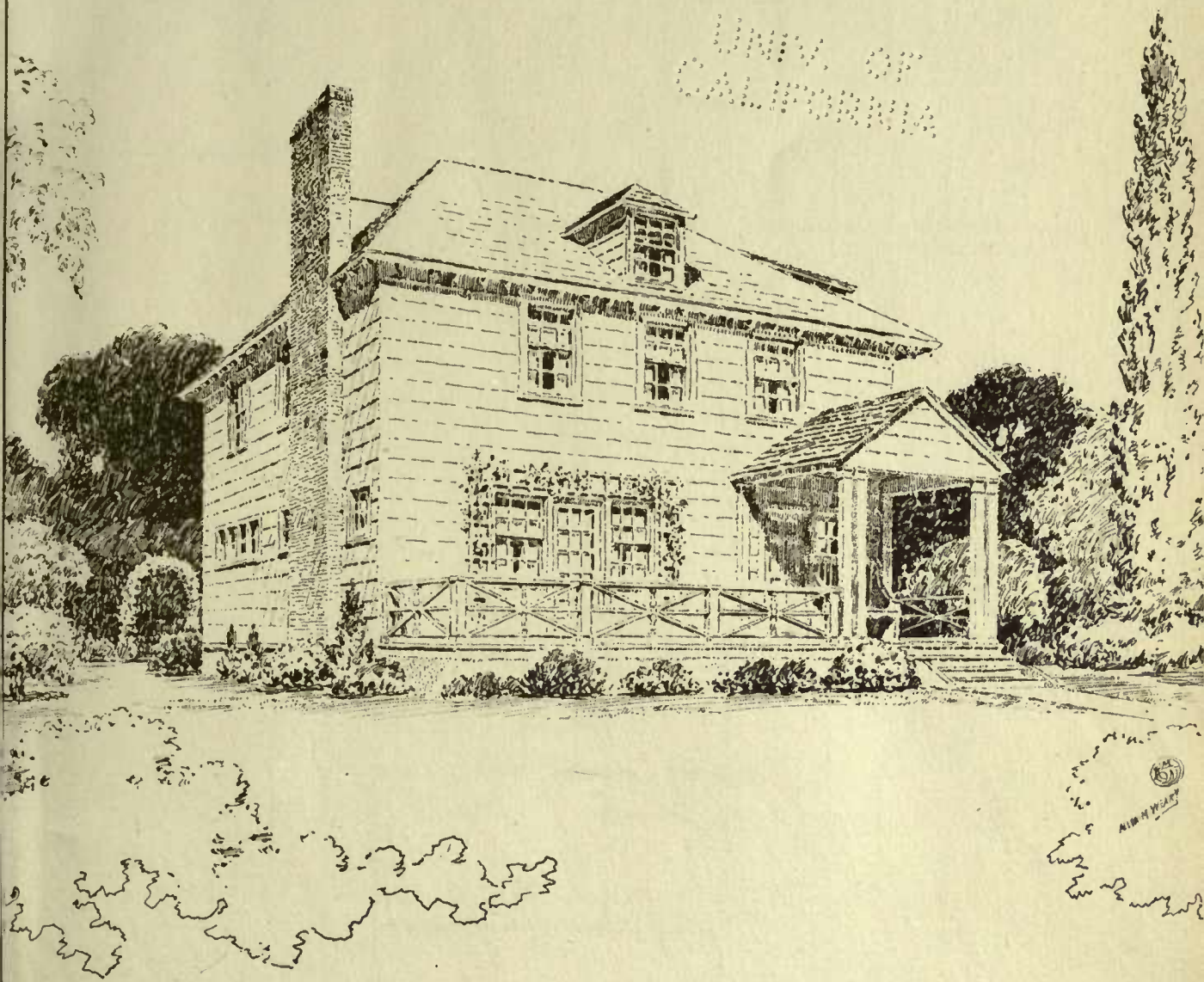
¶ Information incorporated herein has been compiled from common practice as well as from research and the result of work of the best authorities obtainable. Details are shown in such a manner as to be easily applied.

¶ A series of plates of similar character is under preparation, containing details of both exterior and interior finish, equipment, fixtures and other materials necessary to the completion of Frame Buildings.

National
Lumber Manufacturers Association

493443

MEMORANDA



THIS DESIGN HAS BEEN SELECTED FOR THE PURPOSE OF DEMONSTRATING AS MANY AS POSSIBLE OF THE FEATURES COMMON TO FRAME HOUSES OF THIS CLASS. THE FOLLOWING DATA ILLUSTRATE IN DETAIL METHODS TO BE APPLIED IN THE THREE TYPES OF FRAME CONSTRUCTION.

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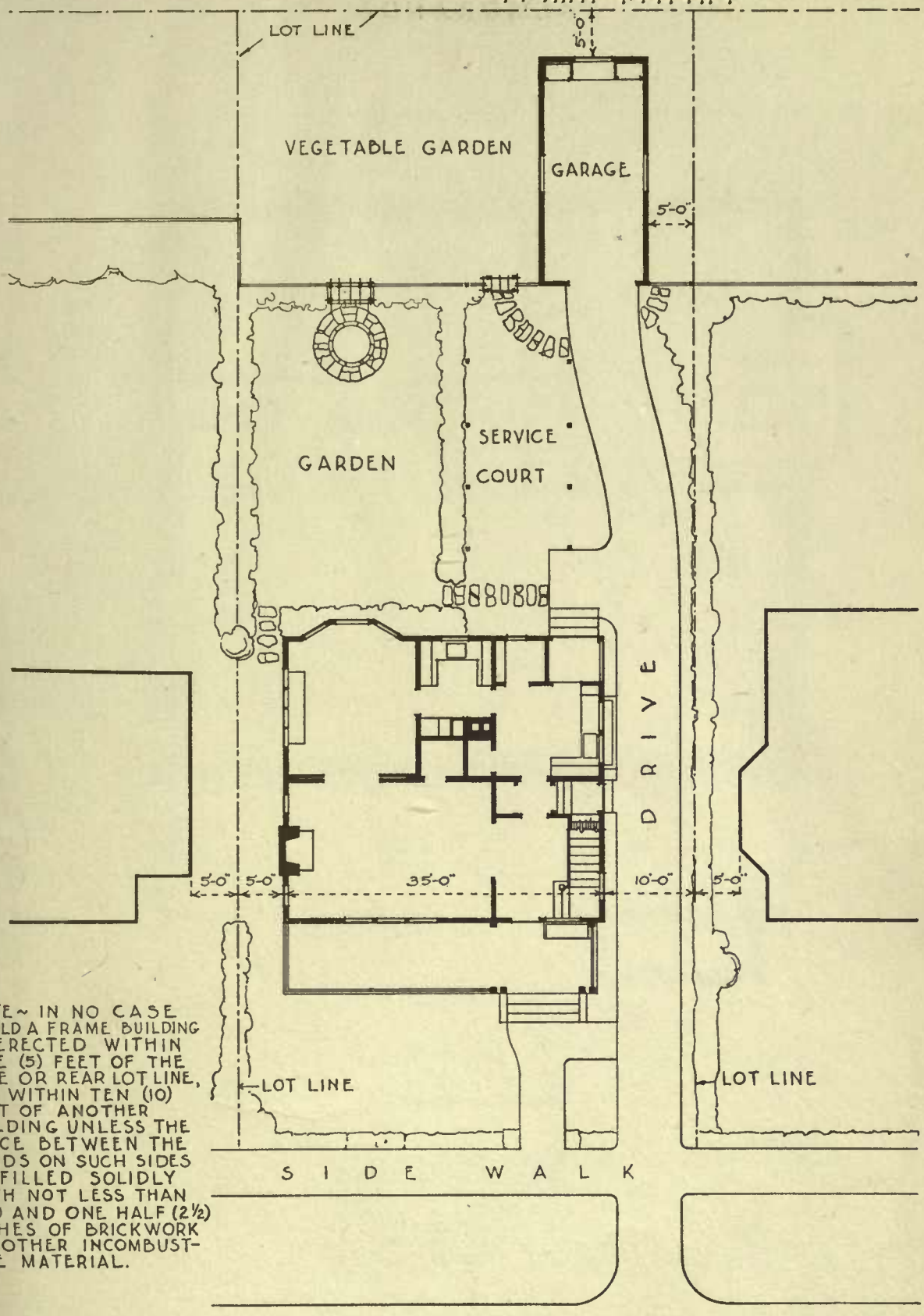
FRAME CONSTRUCTION DETAILS — PLATE NO. 2



NOTE~ IN NO CASE SHOULD A FRAME BUILDING BE ERECTED WITHIN FIVE (5) FEET OF THE SIDE OR REAR LOT LINE, NOR WITHIN TEN (10) FEET OF ANOTHER BUILDING UNLESS THE SPACE BETWEEN THE STUDS ON SUCH SIDES BE FILLED SOLIDLY WITH NOT LESS THAN TWO AND ONE HALF (2½) INCHES OF BRICKWORK OR OTHER INCOMBUSTIBLE MATERIAL.

PLOT PLAN

0 5 10 15

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ARCHITECTURAL AND BUILDING CODE SERVICE

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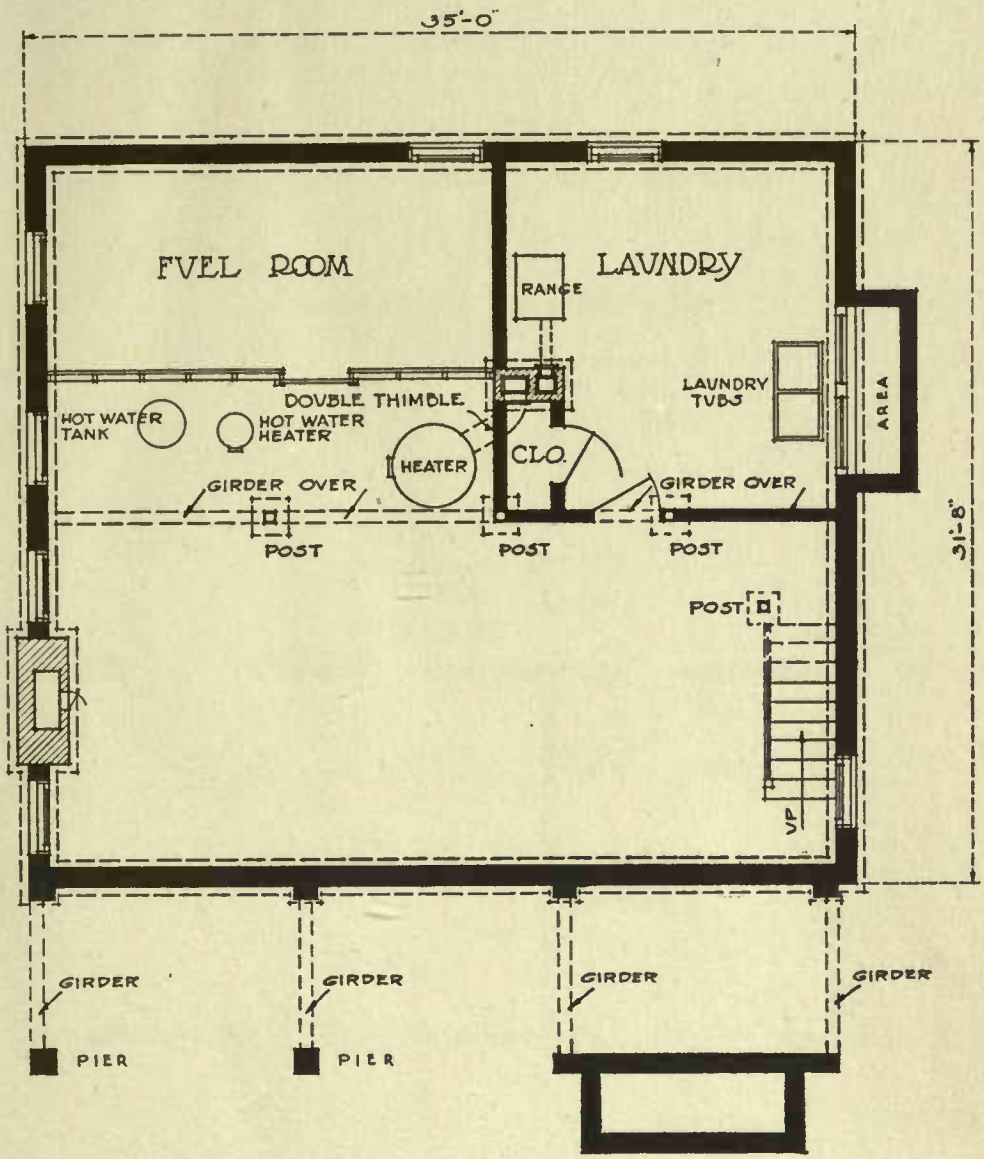
MEMORANDA



BASEMENT PLAN

0 1 2 3 4 5 10

NOTE ~ FOOTINGS SUPPORTING WOODEN POSTS AND COLUMNS SHOULD EXTEND ABOVE THE FINISH FLOOR. EACH END OF SUCH POST OR COLUMN SHOULD BE GIVEN TWO BRUSH APPLICATIONS OF HOT REFINED CREOSOTE TO PREVENT DECAY.

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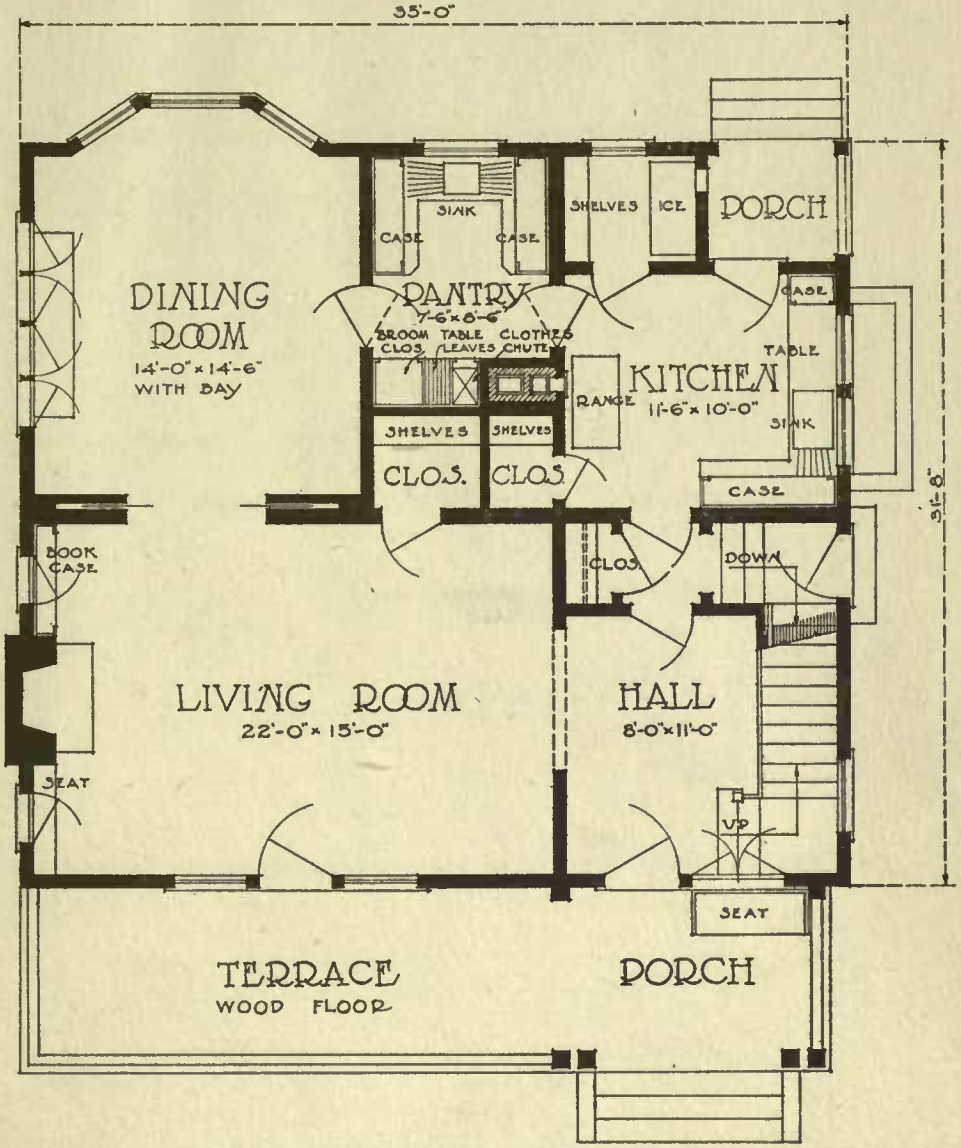

FIRST FLOOR PLAN

0 1 2 3 4 5 10

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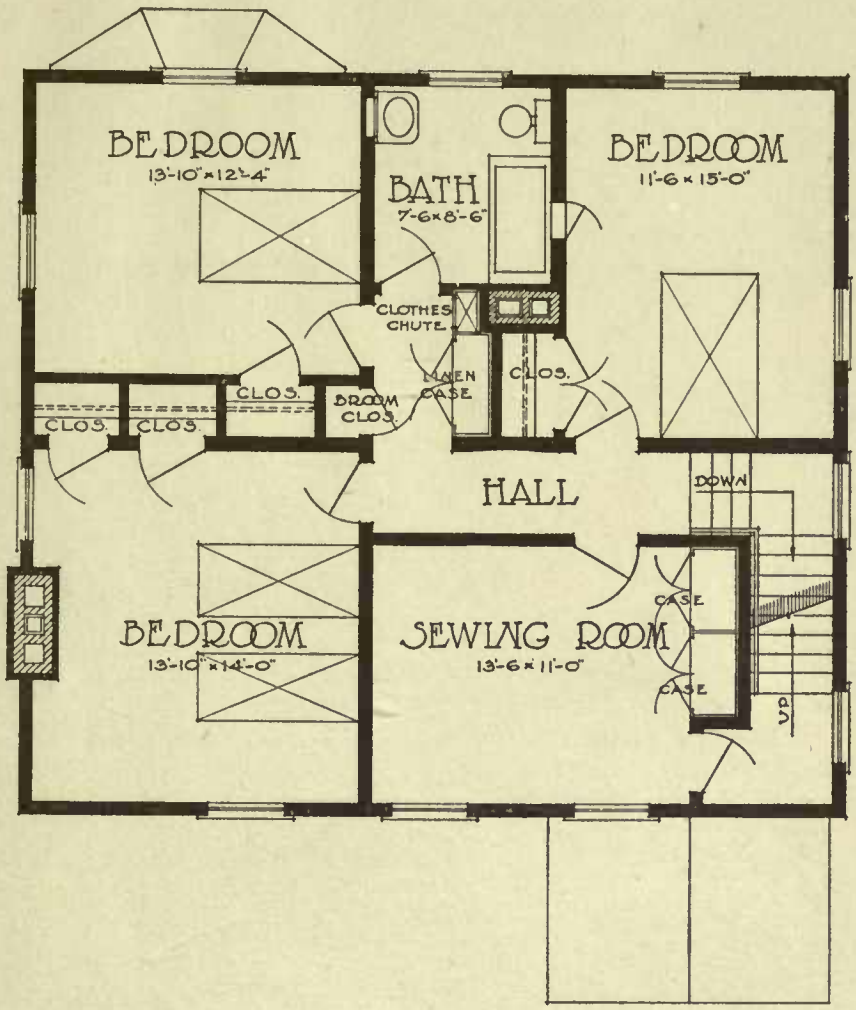

SECOND FLOOR PLAN

0 1 2 3 4 5 10

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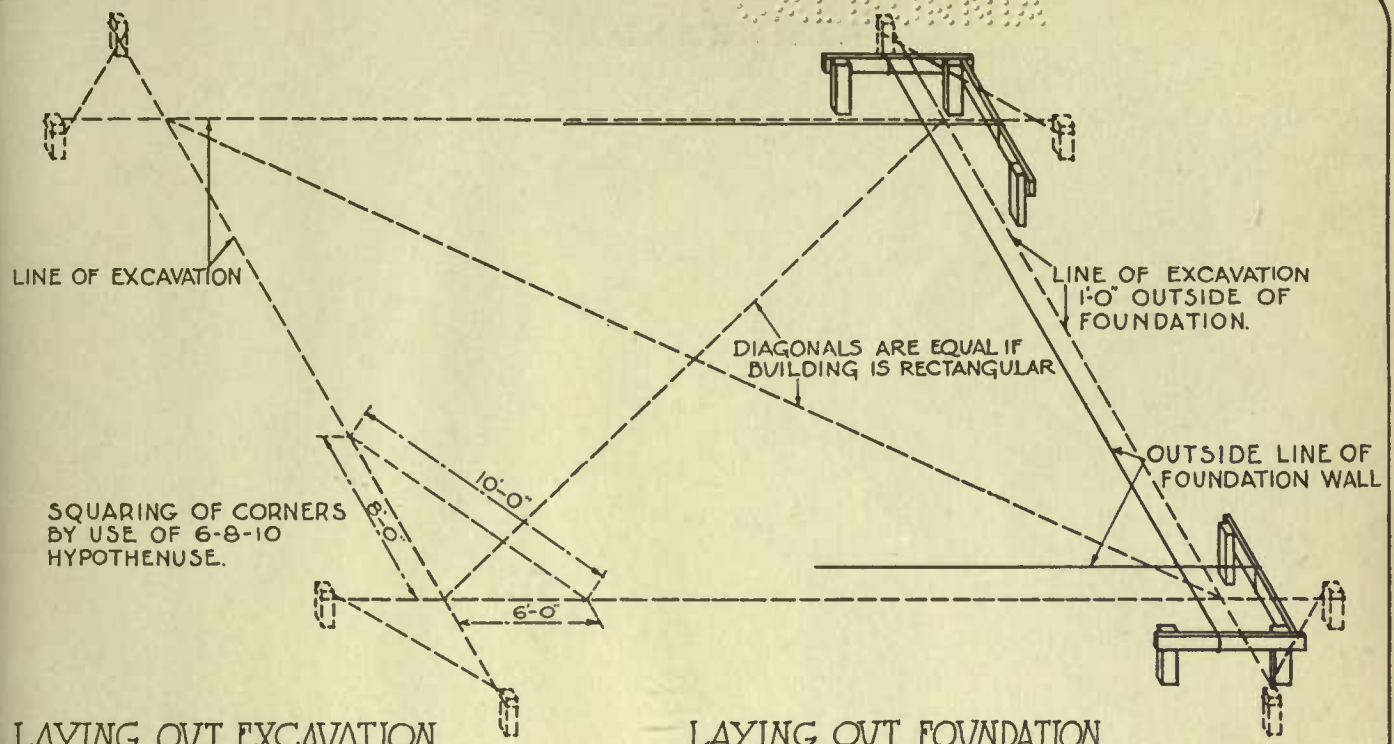
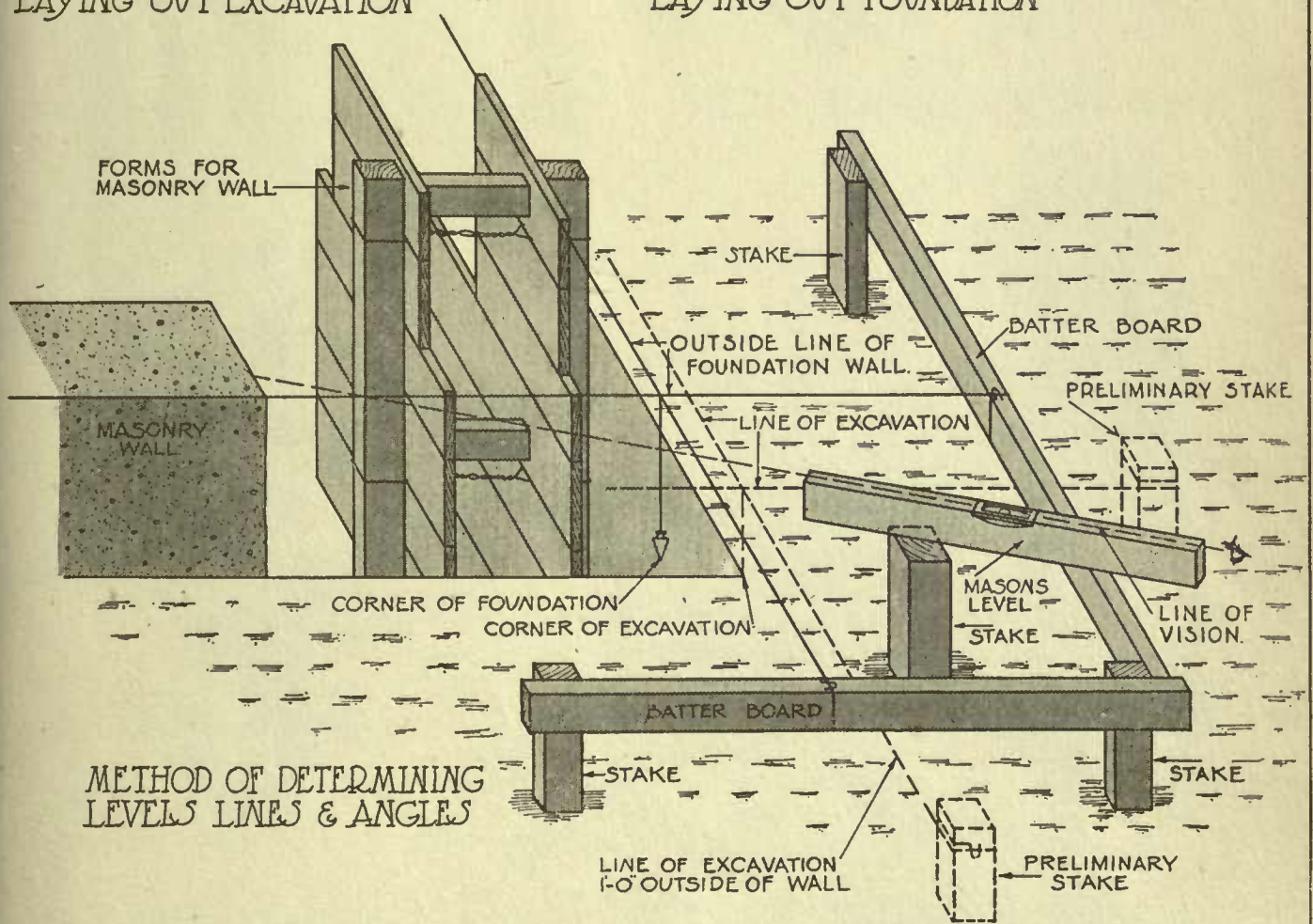

LINE OF EXCAVATION
LINE OF EXCAVATION 1'-0" OUTSIDE OF FOUNDATION.
DIAGONALS ARE EQUAL IF BUILDING IS RECTANGULAR
OUTSIDE LINE OF FOUNDATION WALL
SQUARING OF CORNERS BY USE OF 6-8-10 HYPOTHENUSE.
10'-0"
8'-0"
6'-0"

LAYING OUT EXCAVATION

LAYING OUT FOUNDATION



METHOD OF DETERMINING LEVELS LINES & ANGLES

METHOD OF STAKING AND LAYING OUT THE FOUNDATION WALLS

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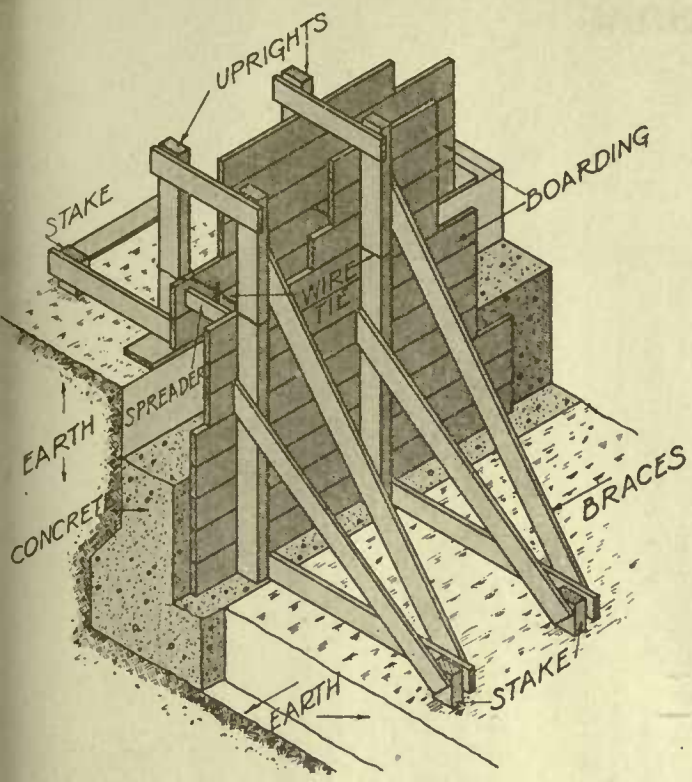
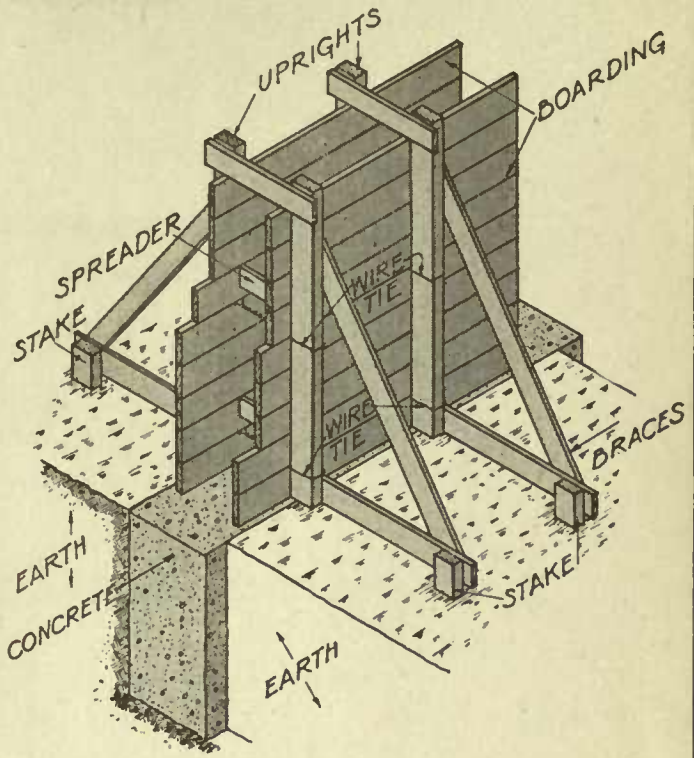
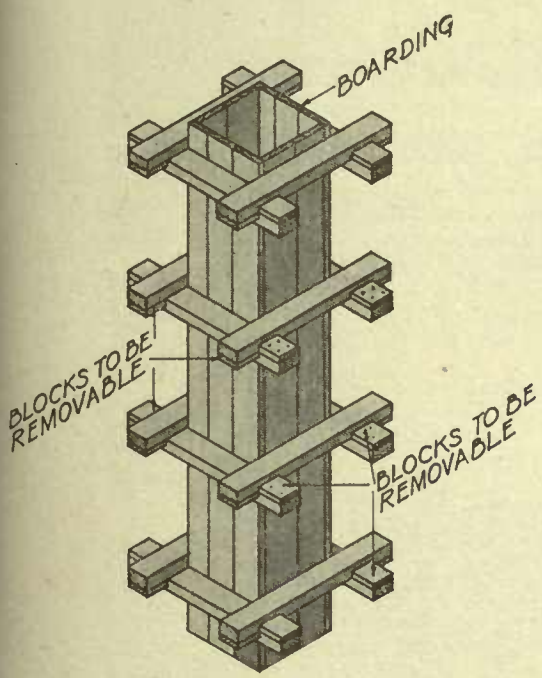
FRAME CONSTRUCTION DETAILS • • • PLATE NO. 7



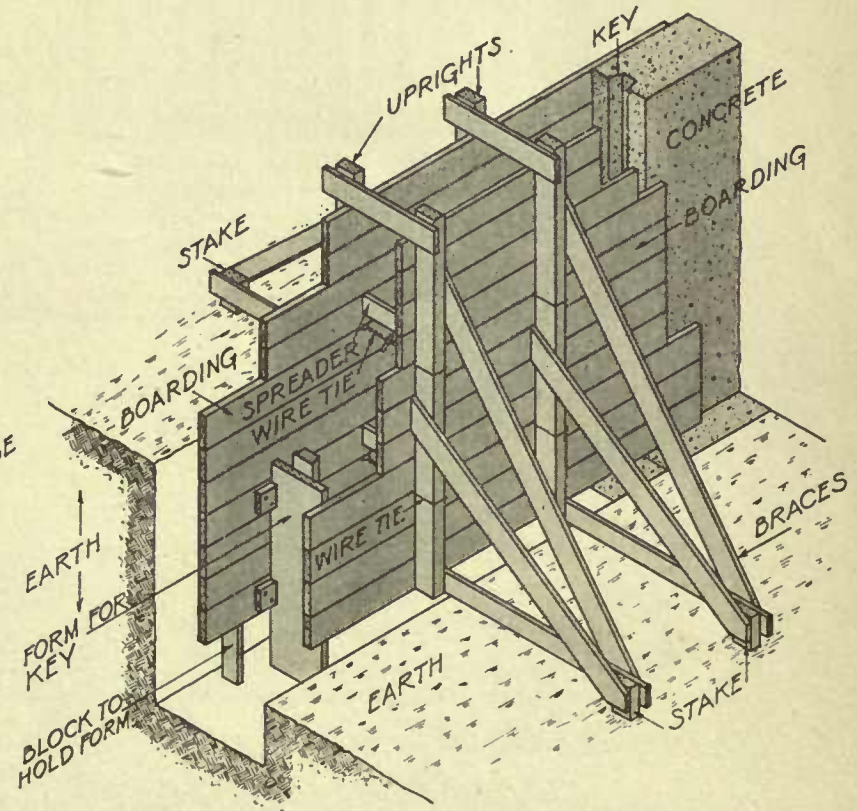
FORMS FOR WALL IN SOLID EARTH



FORMS FOR WALL ABOVE GRADE



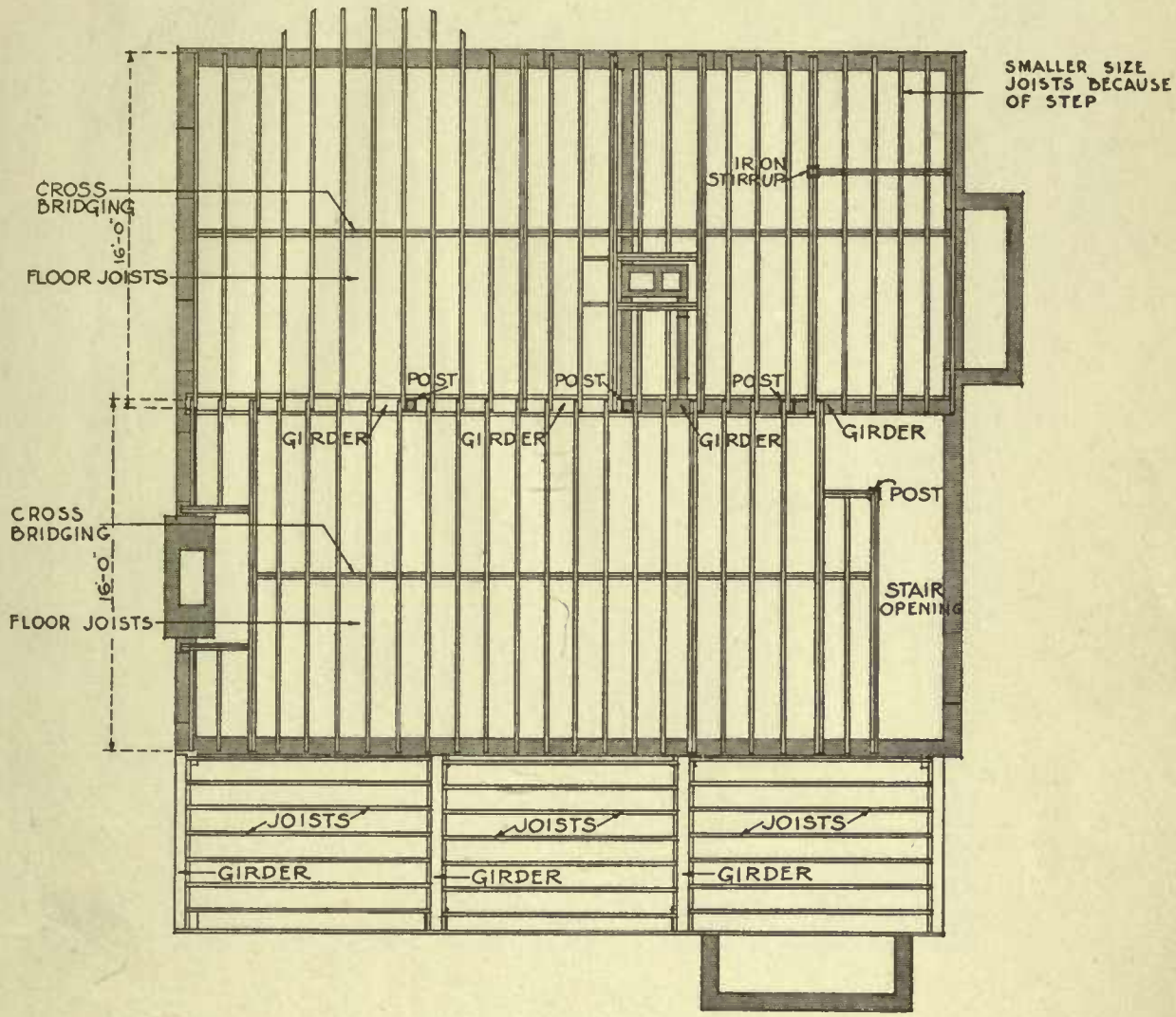
FORMS FOR PIERS



FORMS FOR WALL IN SOFT EARTH AND METHOD OF KEYING WALL FOR A HALT IN CONCRETE

NATIONAL LUMBER MANUFACTURERS ASSOCIATION CHICAGO
ARCHITECTURAL AND BUILDING CODE SERVICE

MEMORANDA



FIRST FLOOR FRAMING PLAN

BASEMENT WALLS AND PARTITIONS SHOWN.

NOTES ~ FRAME BUILDINGS SHOULD BE DESIGNED TO APPLY STANDARD LENGTHS OF LUMBER.
STANDARD LENGTHS ARE MANUFACTURED IN MULTIPLES OF TWO FEET UP TO LENGTH OF TWENTY FOUR FEET.
WHERE GIRDERS OR OTHER MEMBERS ARE BUILT UP, SECTIONS SHOULD BE SECURELY SPIKED TOGETHER.
THE CUTTING OF BEAMS, GIRDERS, JOISTS, OR OTHER SUPPORTING TIMBERS SHOULD BE DONE IN SUCH MANNER AS NOT TO REDUCE THE STRENGTH OF SUCH TIMBER.
ALL JOISTS UNDER PARTITIONS, AROUND LARGE OPENINGS, CHIMNEYS ETC. SHOULD BE DOUBLED.
ALL TIMBER BEARING MEMBERS SHOULD BE LAID CROWN EDGE UP.
TOPS AND ENDS OF PORCH TIMBERS SHOULD RECEIVE TWO BRUSH APPLICATIONS OF HOT REFINED CREOSOTE.
STUDS SHOULD BE DOUBLED UNDER ENDS OF ALL DOUBLE JOISTS.
DISTANCE BETWEEN ROWS OF CROSS BRIDGING OR CROSS BRIDGING AND BEARING SHOULD NOT EXCEED EIGHT FEET.

QJ

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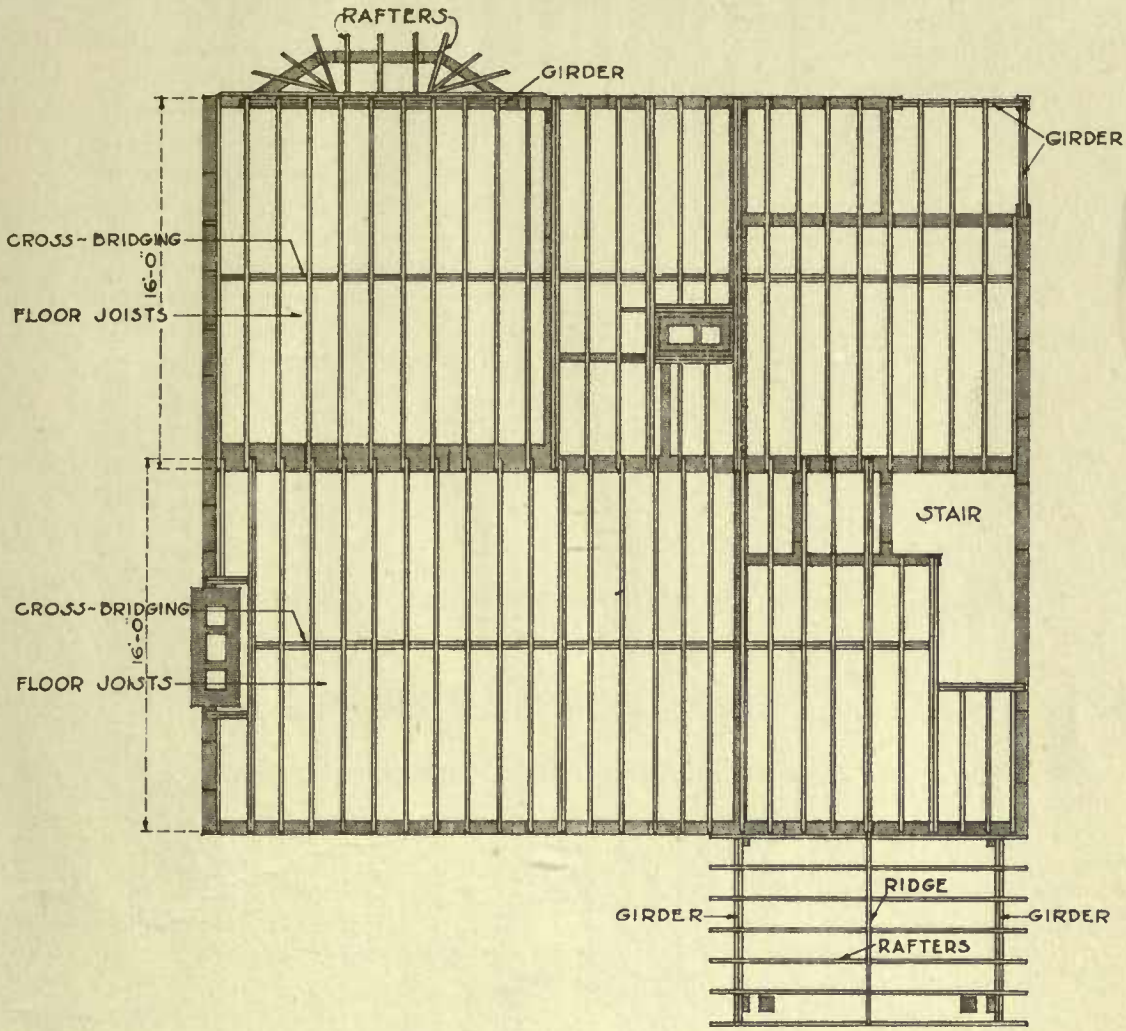

SECOND FLOOR FRAMING PLAN

FIRST STORY WALLS AND PARTITIONS SHOWN.

NOTE~ WHEN THE SIZE OF LUMBER IS GIVEN IN WHOLE NUMBERS STANDARD COMMERCIAL SIZES ARE MEANT. STRESSES SHOULD BE BASED ON THE ACTUAL SIZE OF MATERIAL USED.

THE MINIMUM ACTUAL SIZE OF LUMBER SIGNIFIED BY WHOLE NUMBERS SHALL NOT BE LESS THAN AS FOLLOWS:

COMMERCIAL SIZE.	ACTUAL SIZE.
2 X 4	1 5/8 X 3 5/8
2 X 6	1 5/8 X 5 5/8
2 X 8	1 5/8 X 7 1/2
2 X 10	1 5/8 X 9 1/2
2 X 12	1 5/8 X 11 1/2
3 X 4	2 5/8 X 3 5/8
3 X 6	2 5/8 X 5 5/8
3 X 8	2 5/8 X 7 1/2
3 X 10	2 5/8 X 9 1/2
3 X 12	2 5/8 X 11 1/2

FOR LUMBER 4"x4" AND LARGER THE SIZE MAY BE 1/2" SMALLER IN EACH DIMENSION THAN THE COMMERCIAL SIZE.

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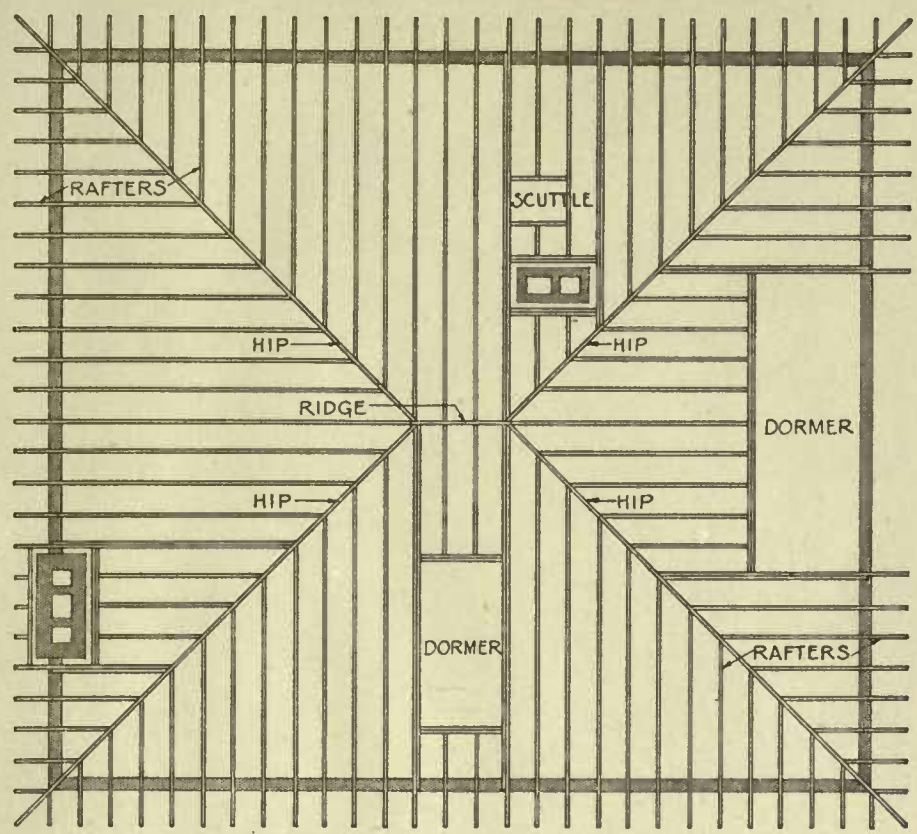
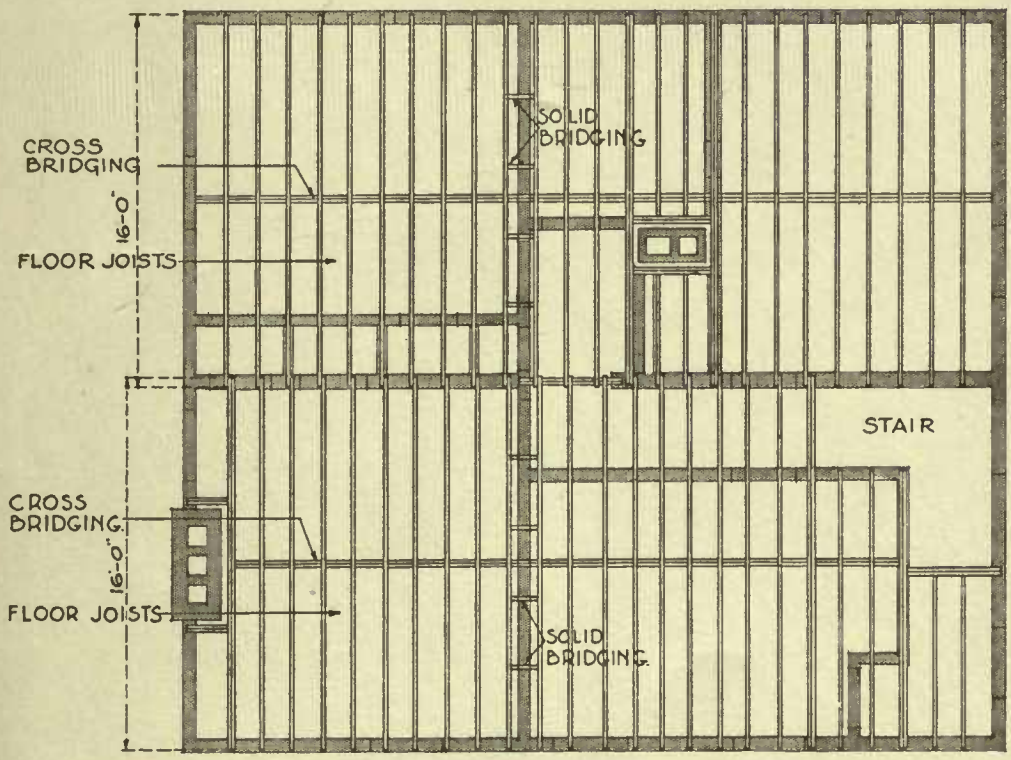


ROOF FRAMING PLAN



ATTIC FLOOR FRAMING PLAN
SECOND STORY WALLS AND PARTITIONS SHOWN.

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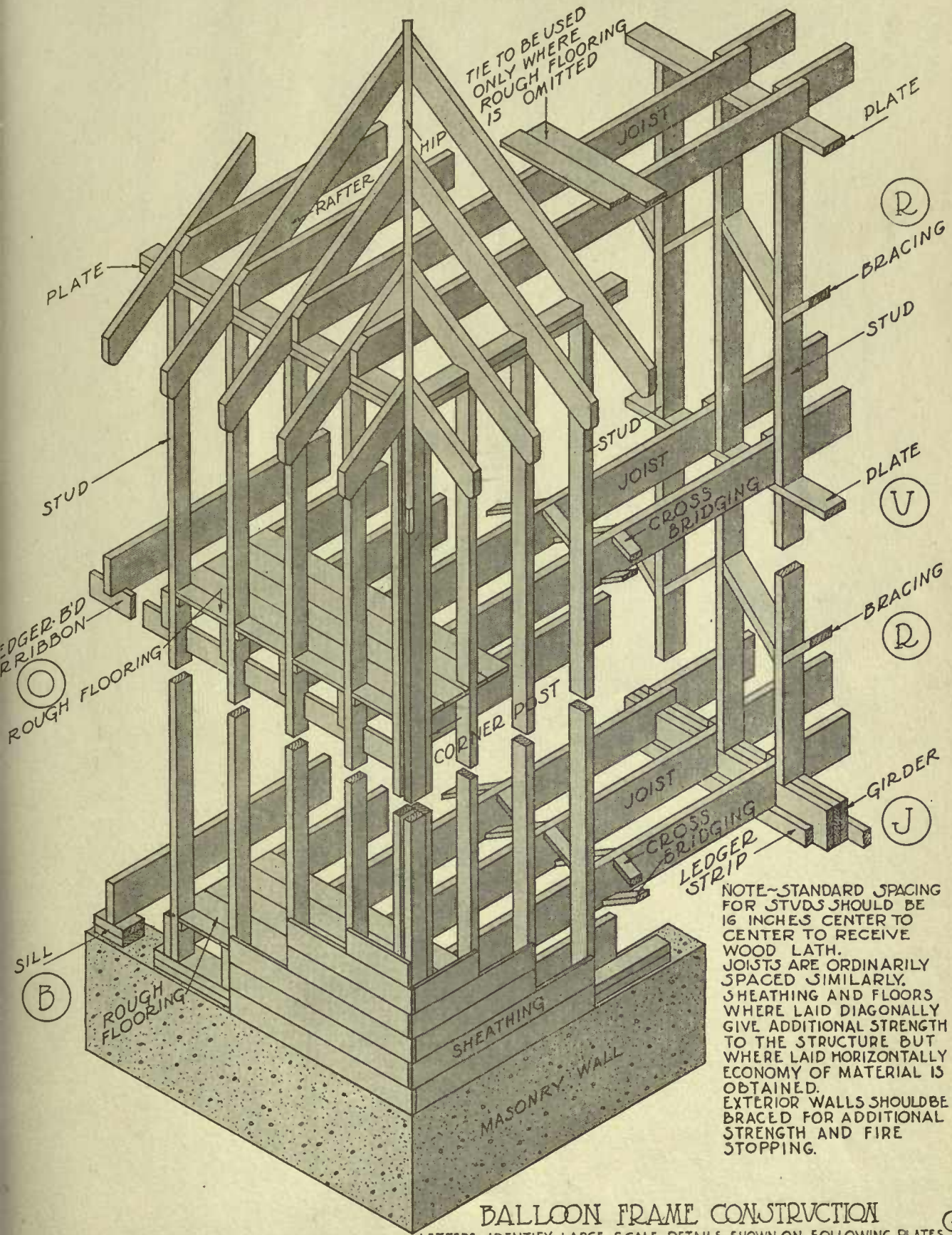

NOTE~STANDARD SPACING FOR STUDS SHOULD BE 16 INCHES CENTER TO CENTER TO RECEIVE WOOD LATH. JOISTS ARE ORDINARILY SPACED SIMILARLY. SHEATHING AND FLOORS WHERE LAID DIAGONALLY GIVE ADDITIONAL STRENGTH TO THE STRUCTURE BUT WHERE LAID HORIZONTALLY ECONOMY OF MATERIAL IS OBTAINED. EXTERIOR WALLS SHOULDBE BRACED FOR ADDITIONAL STRENGTH AND FIRE STOPPING.

BALLOON FRAME CONSTRUCTION

LETTERS IDENTIFY LARGE SCALE DETAILS SHOWN ON FOLLOWING PLATES. U

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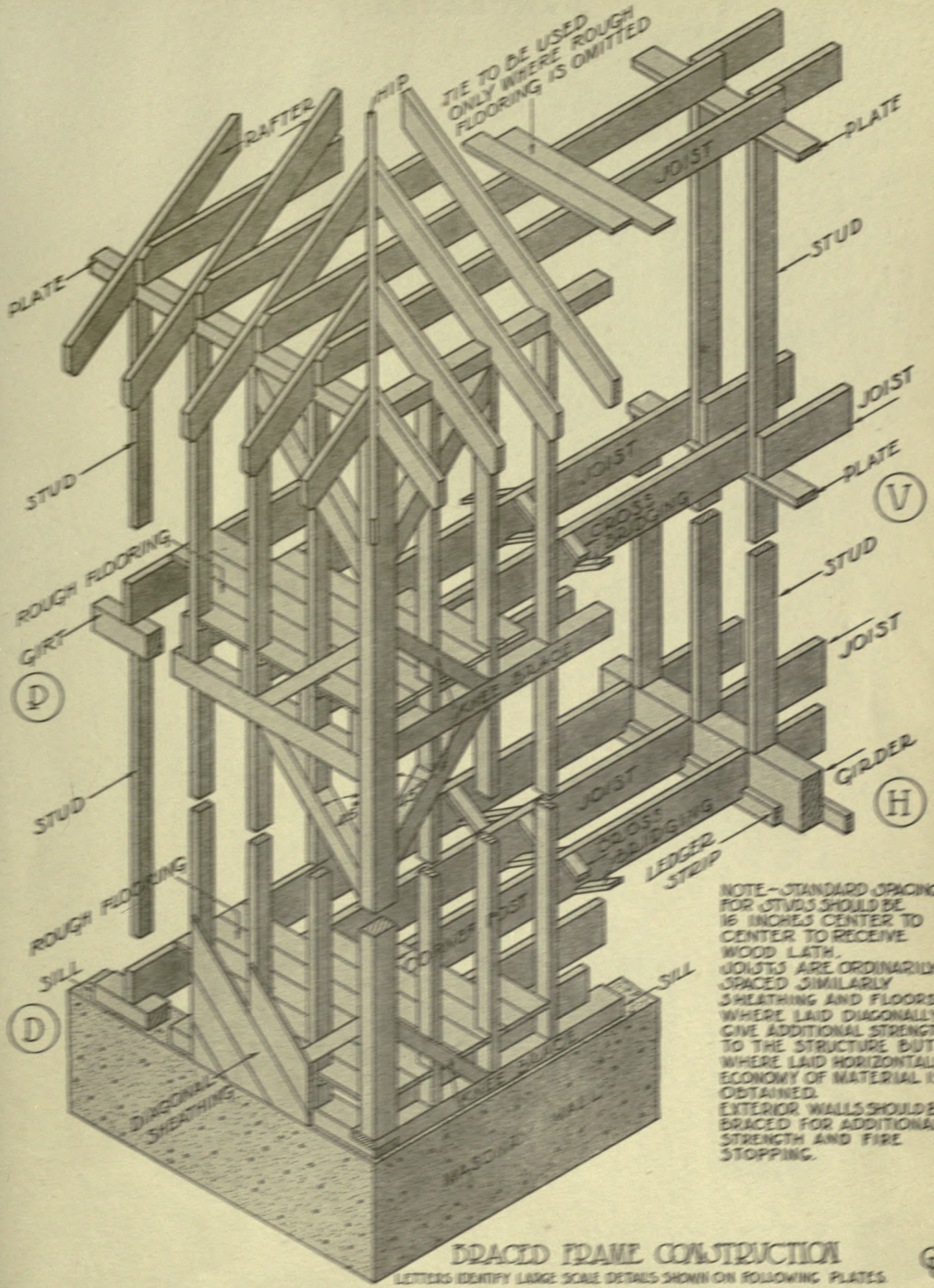

NOTE—STANDARD SPACING FOR STUDS SHOULD BE 16 INCHES CENTER TO CENTER TO RECEIVE WOOD LATH.
JOISTS ARE ORDINARILY SPACED SIMILARLY SHEATHING AND FLOORS WHERE LAID DIAGONALLY GIVE ADDITIONAL STRENGTH TO THE STRUCTURE BUT WHERE LAID HORIZONTALLY ECONOMY OF MATERIAL IS OBTAINED.
EXTERIOR WALLS SHOULD BE BRACED FOR ADDITIONAL STRENGTH AND FIRE STOPPING.

BRACED FRAME CONSTRUCTION

LETTERS IDENTIFY LARGE SCALE DETAILS SHOWN ON FOLLOWING PLATES.

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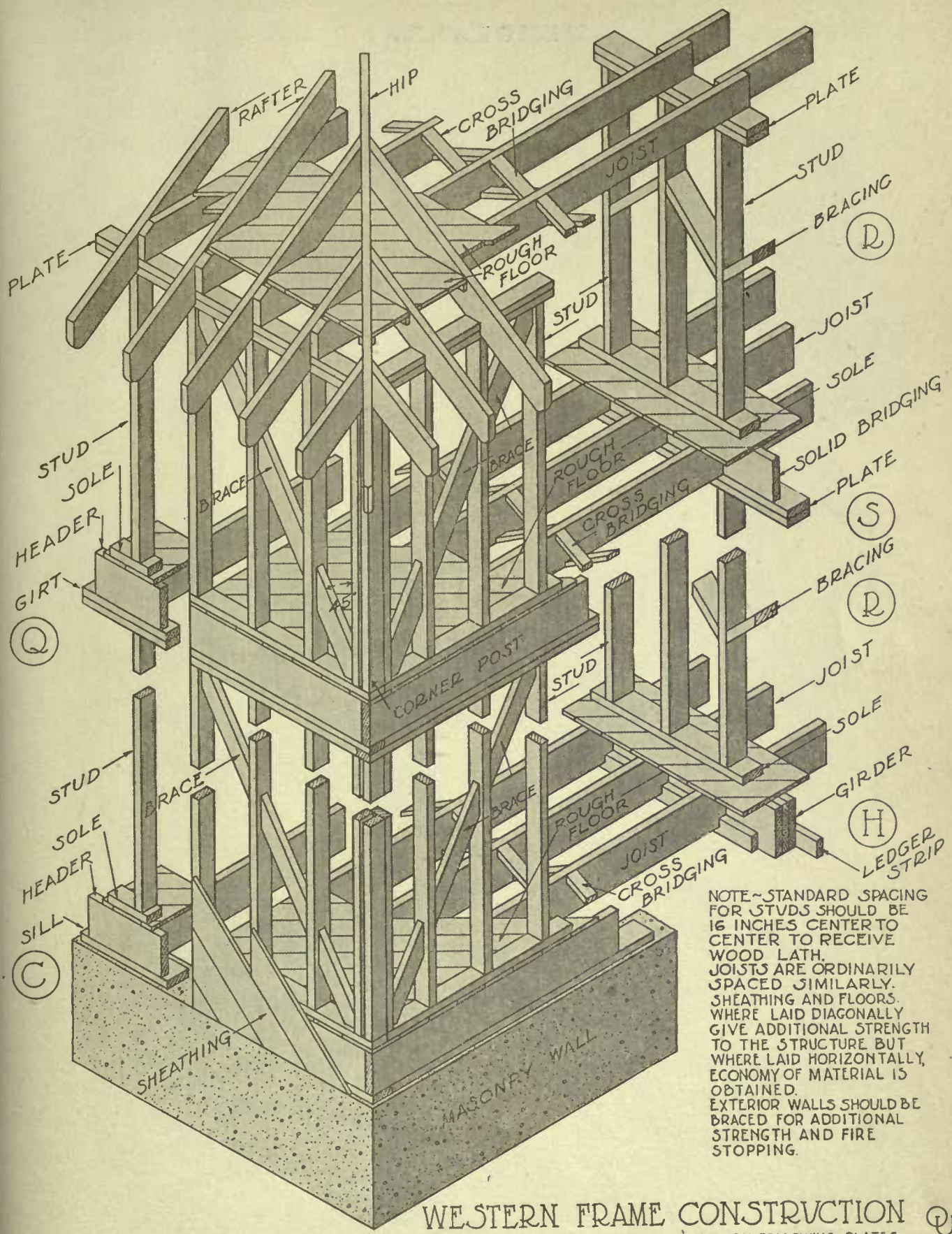

NOTE~STANDARD SPACING FOR STUDS SHOULD BE 16 INCHES CENTER TO CENTER TO RECEIVE WOOD LATH. JOISTS ARE ORDINARILY SPACED SIMILARLY. SHEATHING AND FLOORS. WHERE LAID DIAGONALLY GIVE ADDITIONAL STRENGTH TO THE STRUCTURE BUT WHERE LAID HORIZONTALLY, ECONOMY OF MATERIAL IS OBTAINED.
EXTERIOR WALLS SHOULD BE BRACED FOR ADDITIONAL STRENGTH AND FIRE STOPPING.

WESTERN FRAME CONSTRUCTION

LETTERS IDENTIFY LARGE SCALE DETAILS SHOWN ON FOLLOWING PLATES

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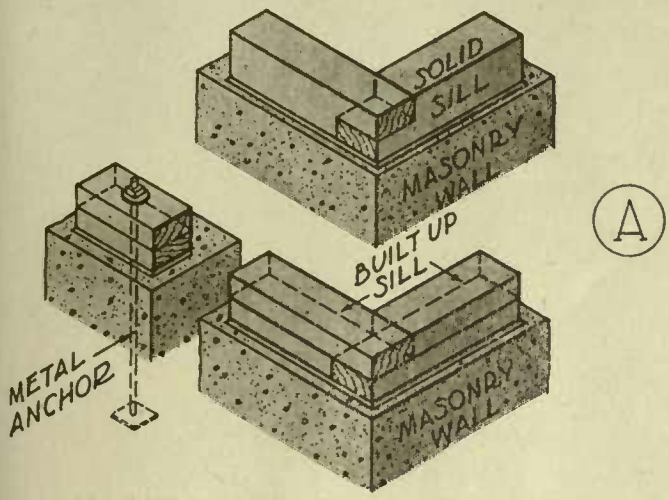
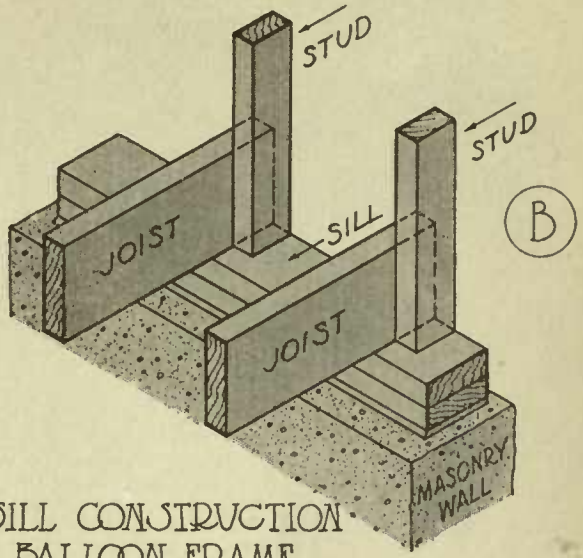
FRAME CONSTRUCTION DETAILS - - - PLATE NO. 14

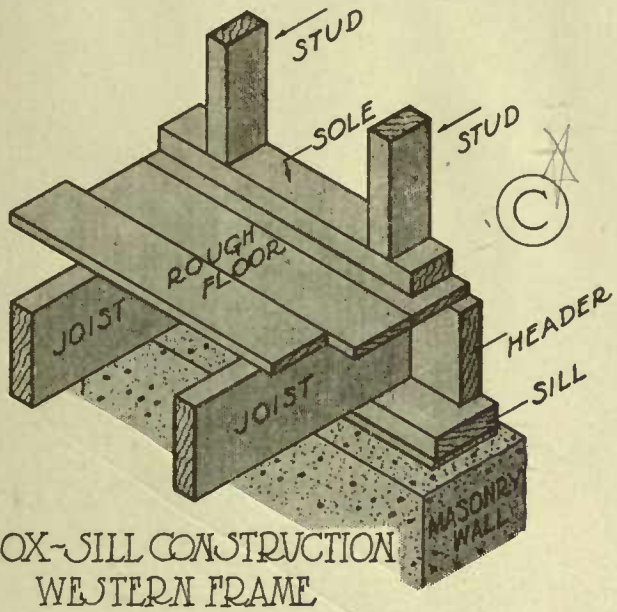
ALL SILLS SHOULD BE BEDDED IN MORTAR AND SECURELY ANCHORED TO MASONRY



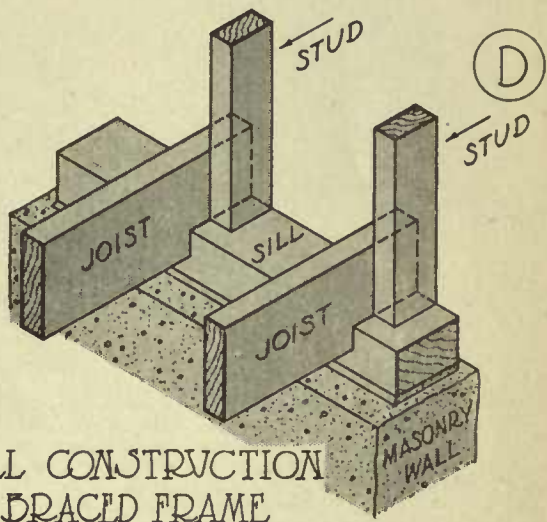
HALVING OF SILLS AT CORNER



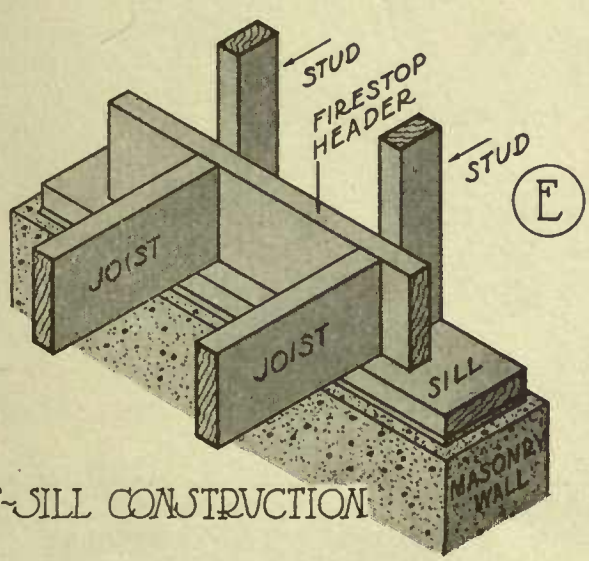
SILL CONSTRUCTION
BALLOON FRAME



BOX-SILL CONSTRUCTION
WESTERN FRAME



SILL CONSTRUCTION
BRACED FRAME



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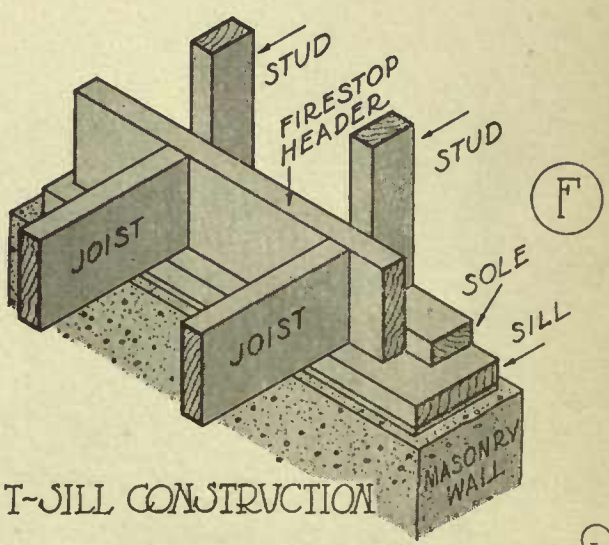
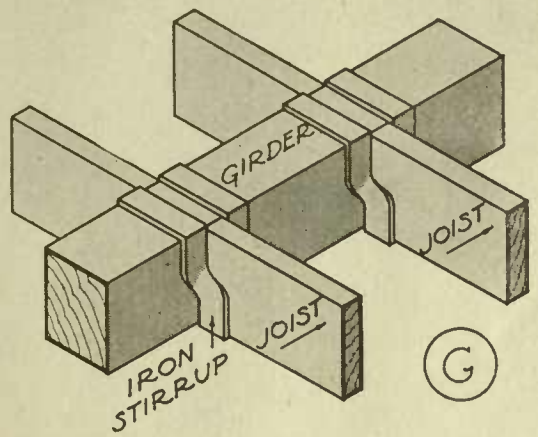


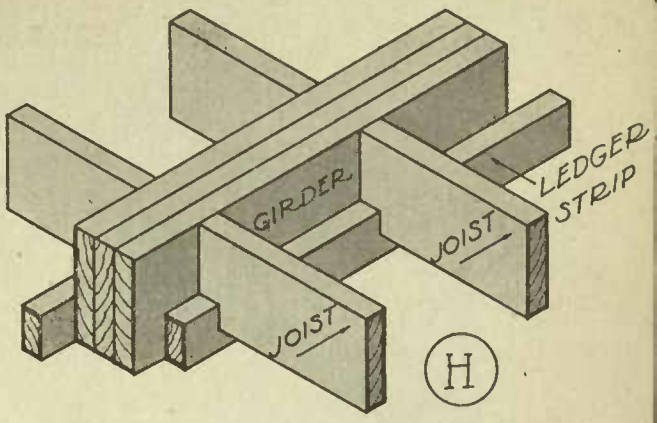
T-SILL CONSTRUCTION

NATIONAL LUMBER MANUFACTURERS ASSOCIATION CHICAGO
ARCHITECTURAL AND BUILDING CODE SERVICE

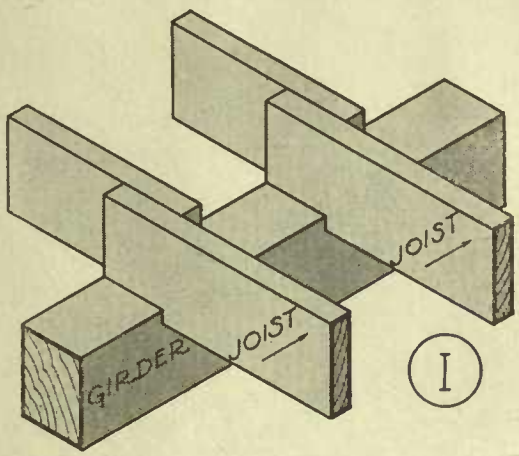
MEMORANDA



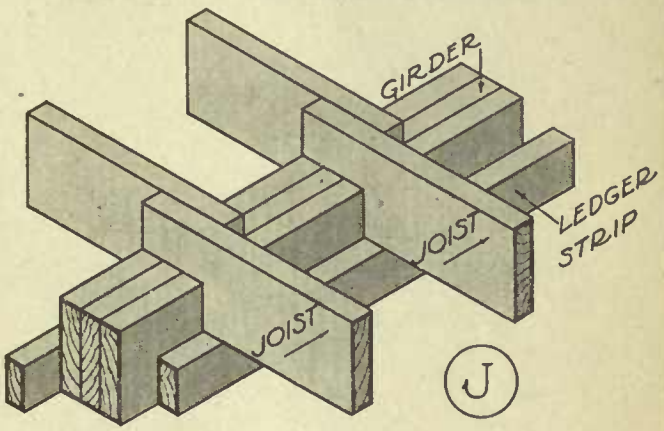
JOISTS HUNG ON GIRDER WITH IRON STIRRUPS



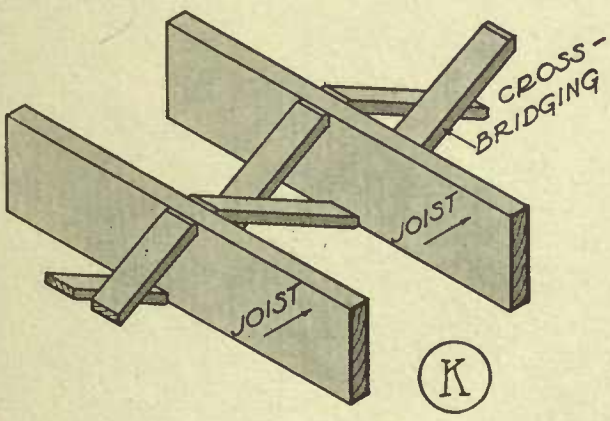
GIRDER CONSTRUCTION TO EQUALIZE SHRINKAGE BRACED & WESTERN FRAME



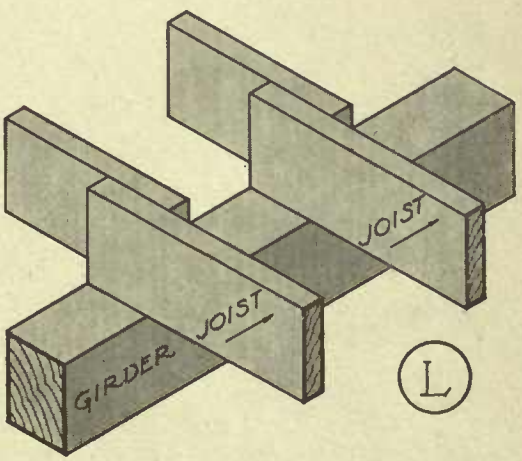
JOISTS SIZED DOWN 1 IN. ON GIRDER WITH LAP



GIRDER CONSTRUCTION TO EQUALIZE SHRINKAGE BALLOON FRAME



CROSS-BRIDGING BETWEEN JOISTS



JOISTS LAPPED ON TOP OF GIRDER

DIMINISHED DEPTH OF BEAM AT BEARING POINTS REDUCES CARRYING CAPACITY

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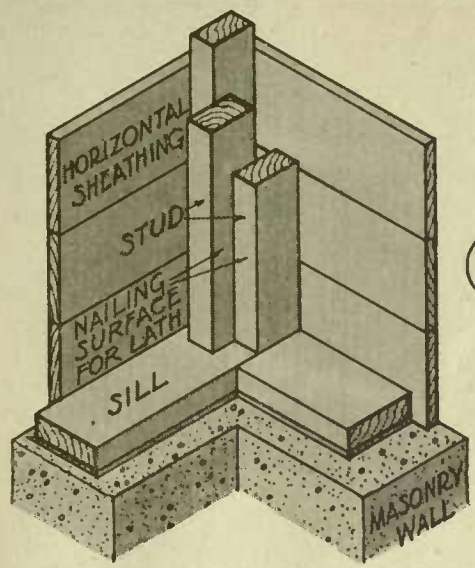
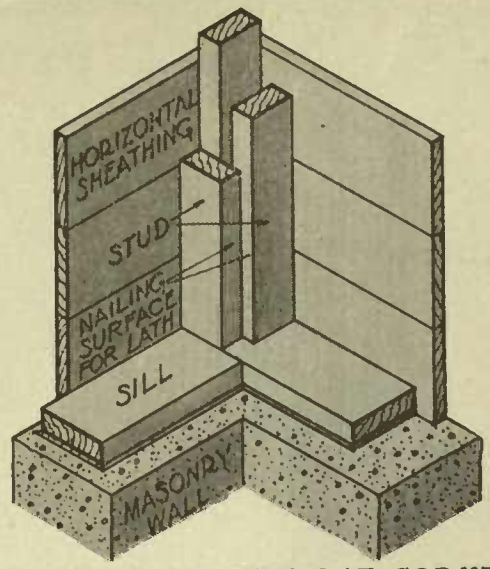


M

FRAMING OF STUDS AT CORNER



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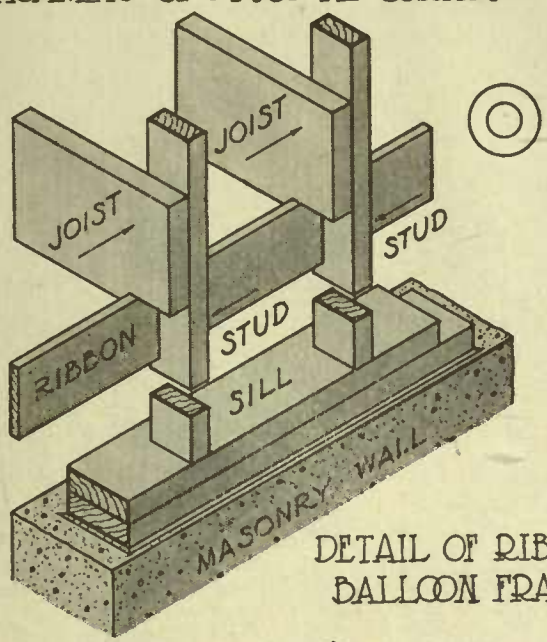
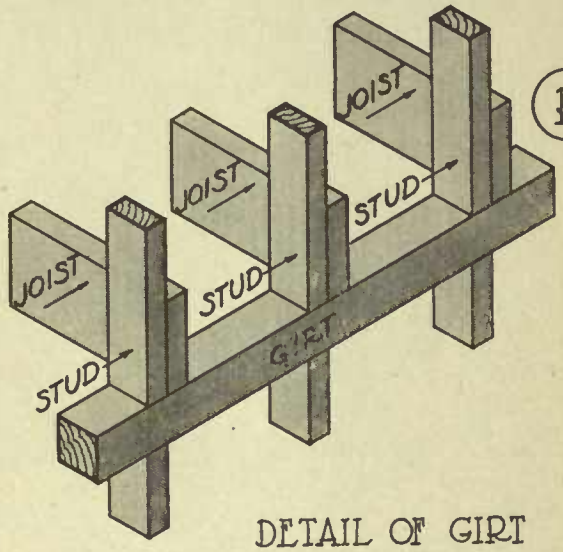
FRAMING OF STUDS AT CORNER



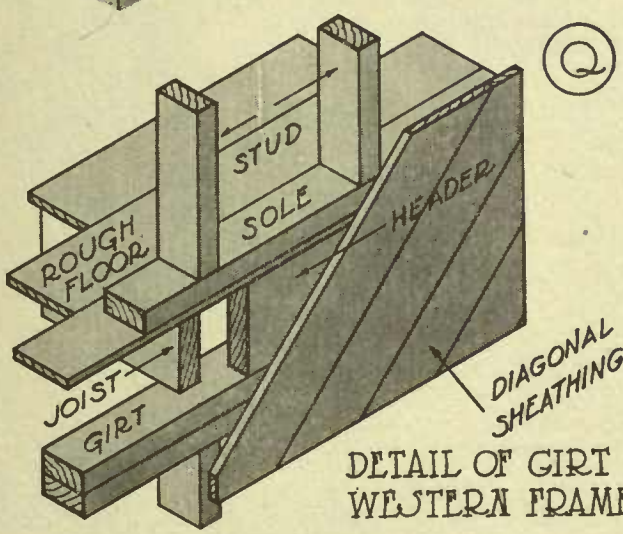
O

DETAIL OF RIBBON BALLOON FRAME



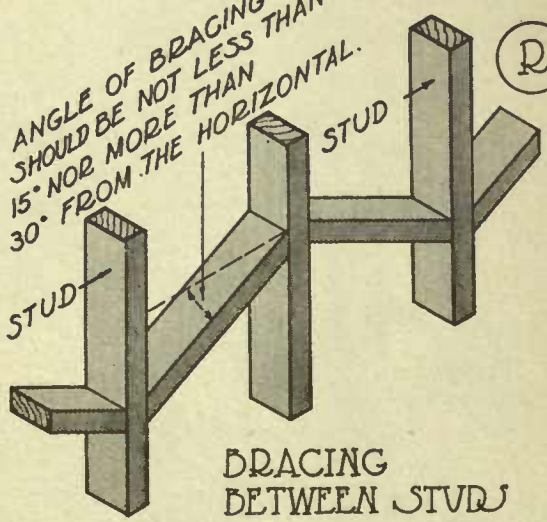
P

DETAIL OF GIRT BRACED FRAME



Q

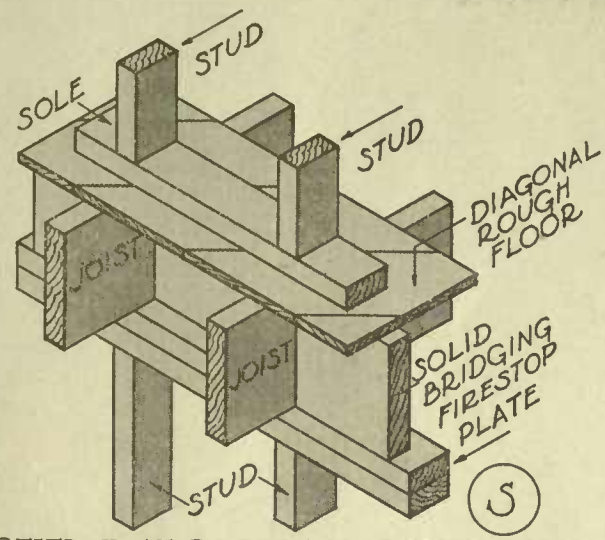
DETAIL OF GIRT WESTERN FRAME



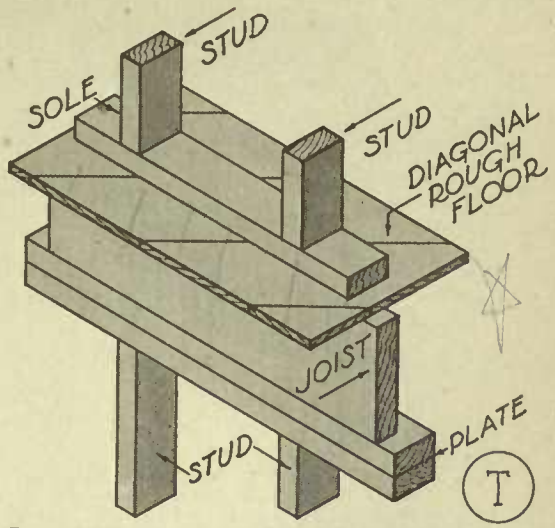
R

BRACING BETWEEN STUDS

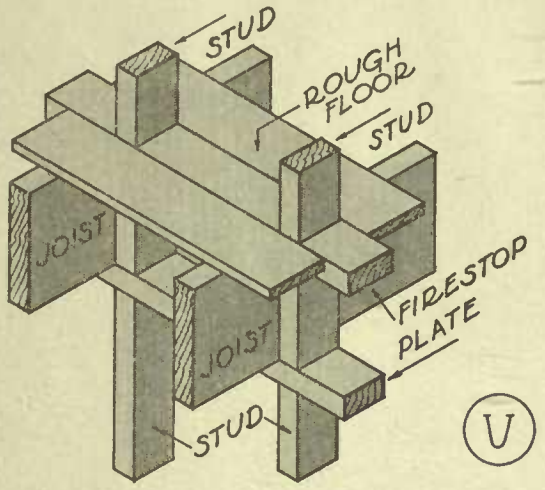
MEMORANDA



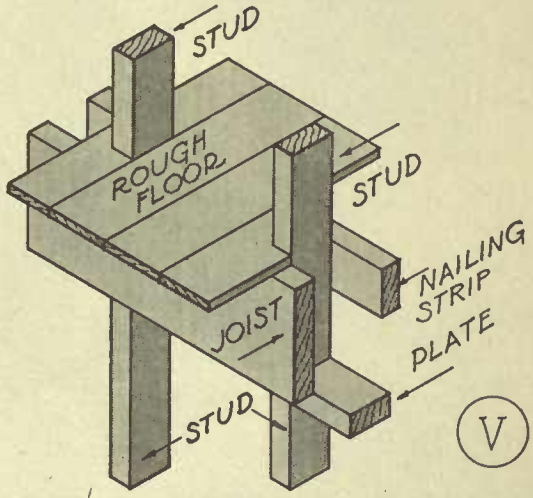
PARTITION AT RIGHT ANGLES TO JOISTS
WESTERN FRAME



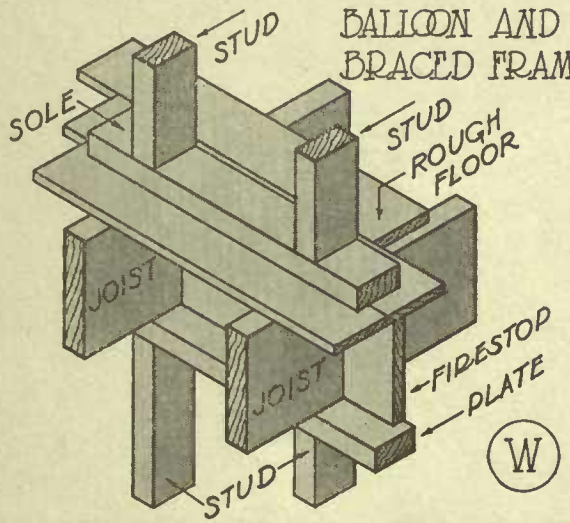
PARTITION PARALLEL WITH JOISTS
WESTERN FRAME



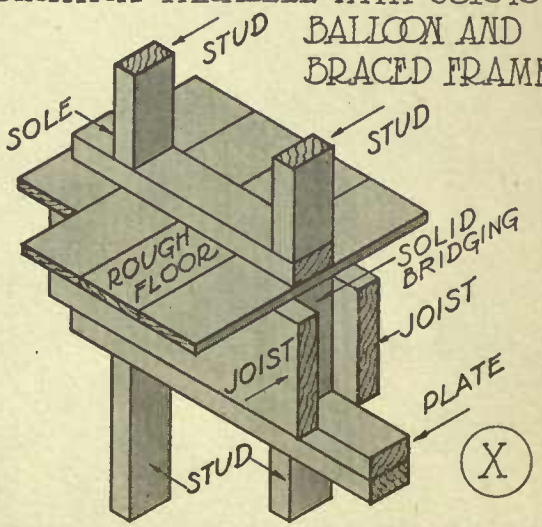
PARTITION AT RIGHT ANGLES TO JOISTS
BALLOON FRAME



PARTITION PARALLEL WITH JOISTS
BALLOON AND BRACED FRAME



PARTITION AT RIGHT ANGLES TO JOISTS
BALLOON FRAME



PARTITION PARALLEL WITH JOISTS AND
JOISTS SPREAD FOR PIPES ETC QJ

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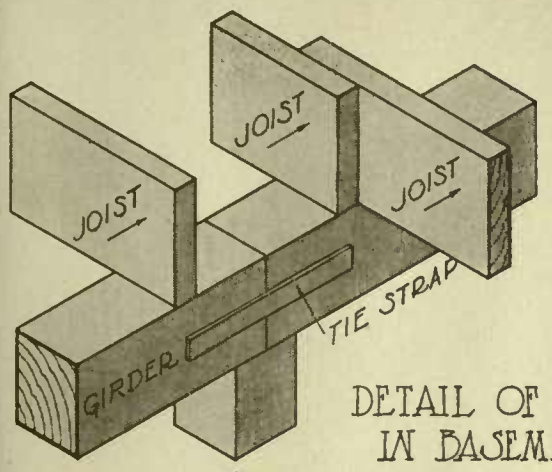
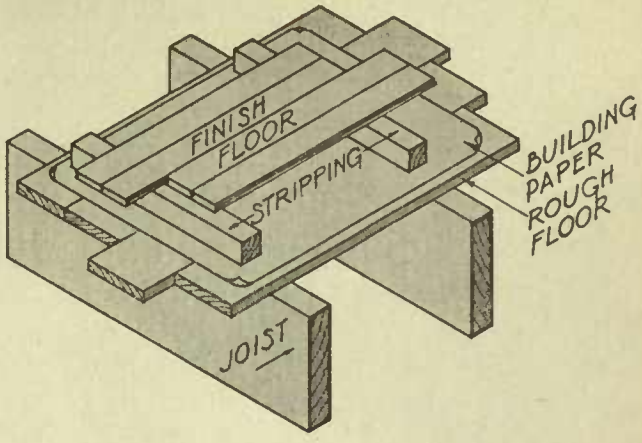
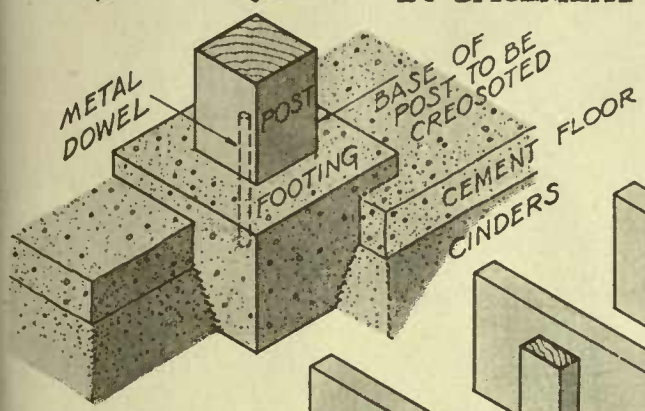
FRAME CONSTRUCTION DETAILS — PLATE NO. 18

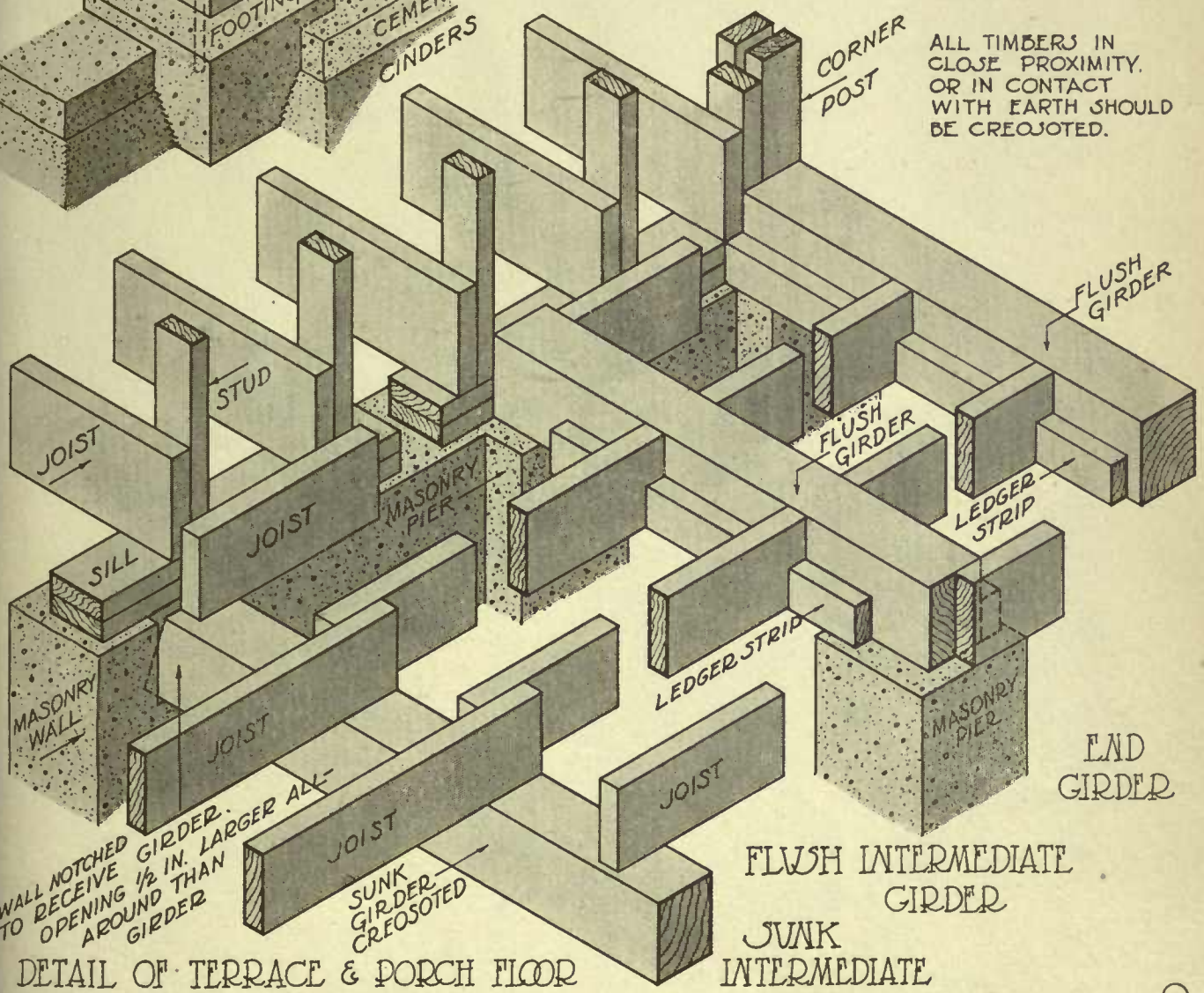


DETAIL OF POSTS IN BASEMENT



USE OF STRIPPING IN FLOORS TO PROVIDE SPACE FOR CONDUITS





DETAIL OF TERRACE & PORCH FLOOR

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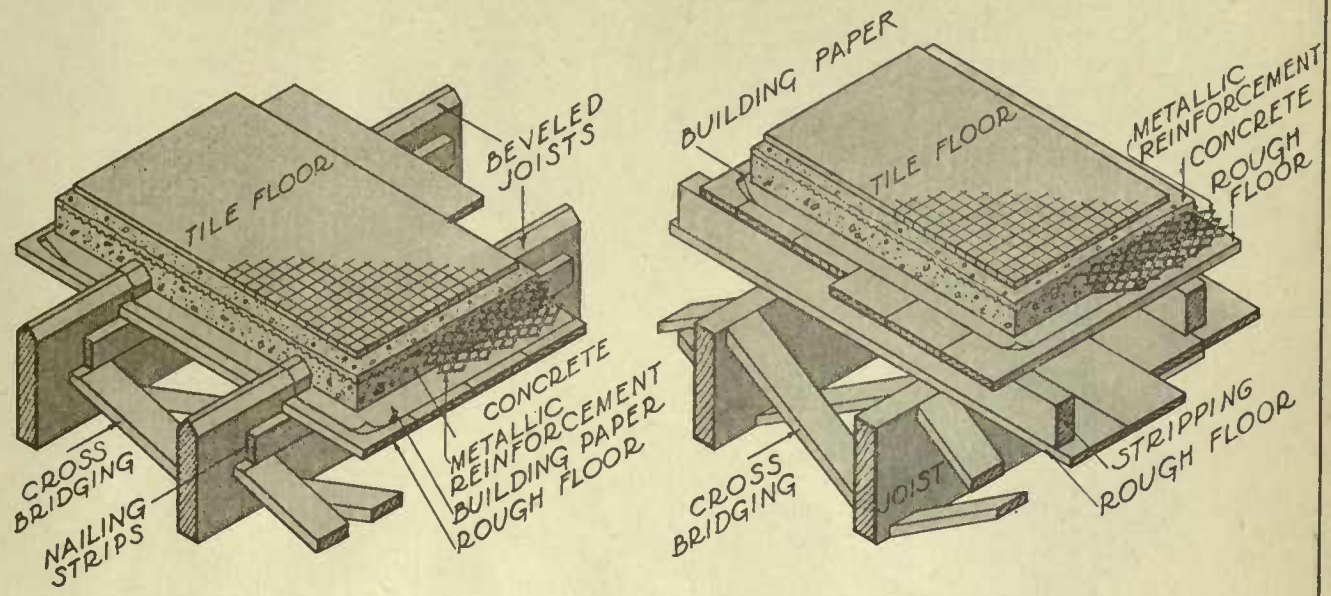
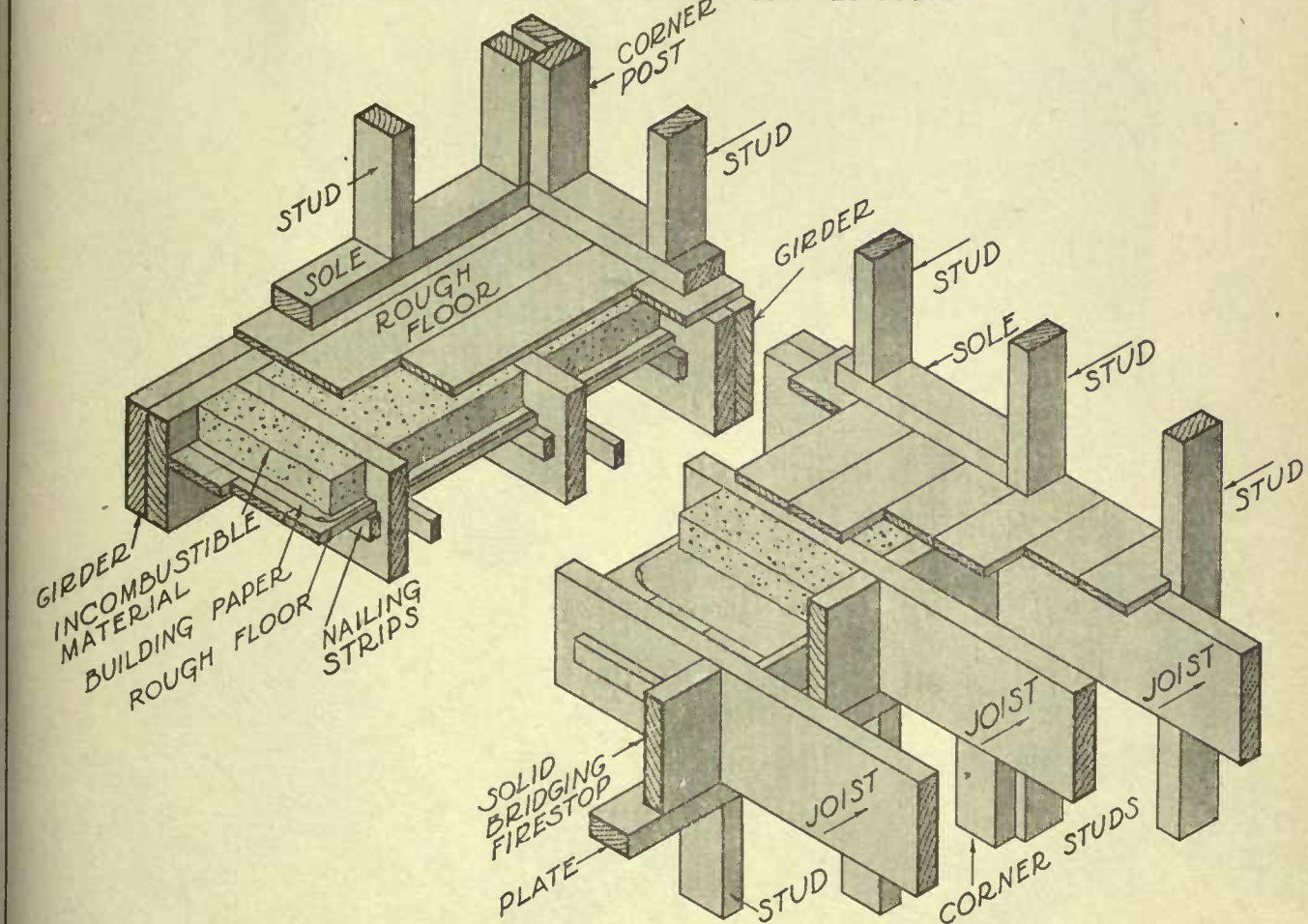


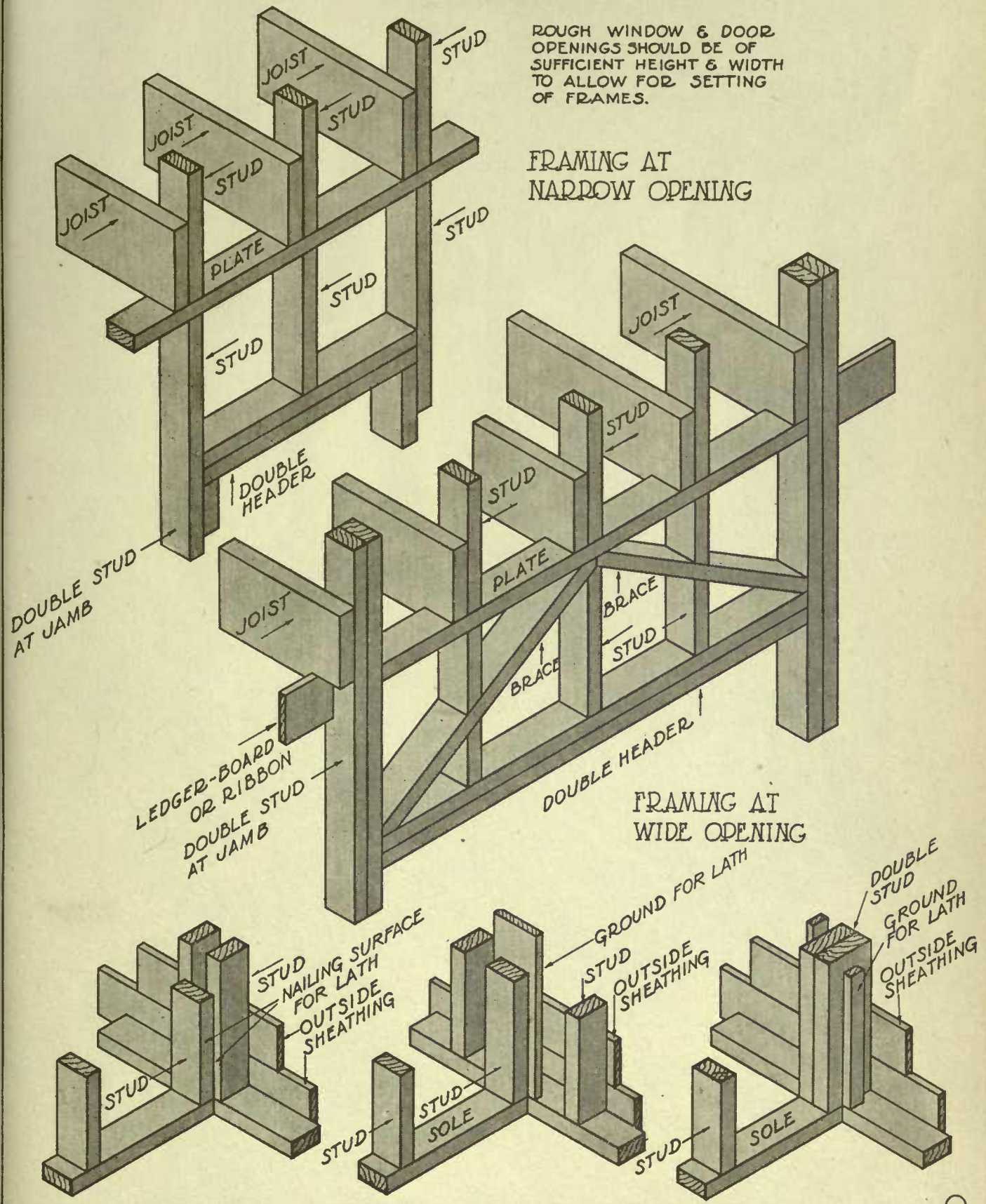
TILE FLOOR FLUSH WITH MAIN FLOOR TILE FLOOR STEPPED UP

METHODS OF LAYING TILE FLOORS



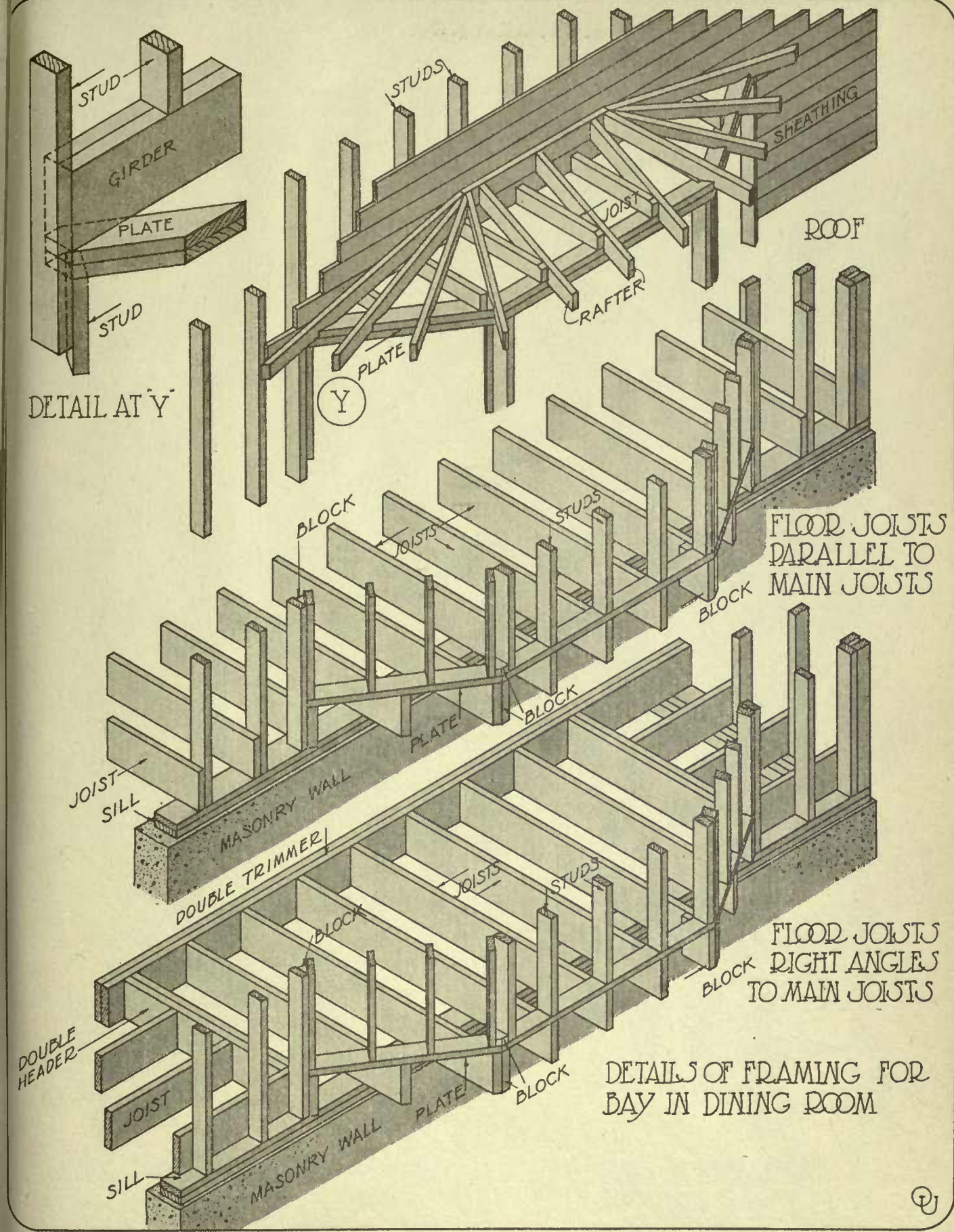
DETAIL OF SECOND FLOOR OVER THE REAR PORCH

MEMORANDA

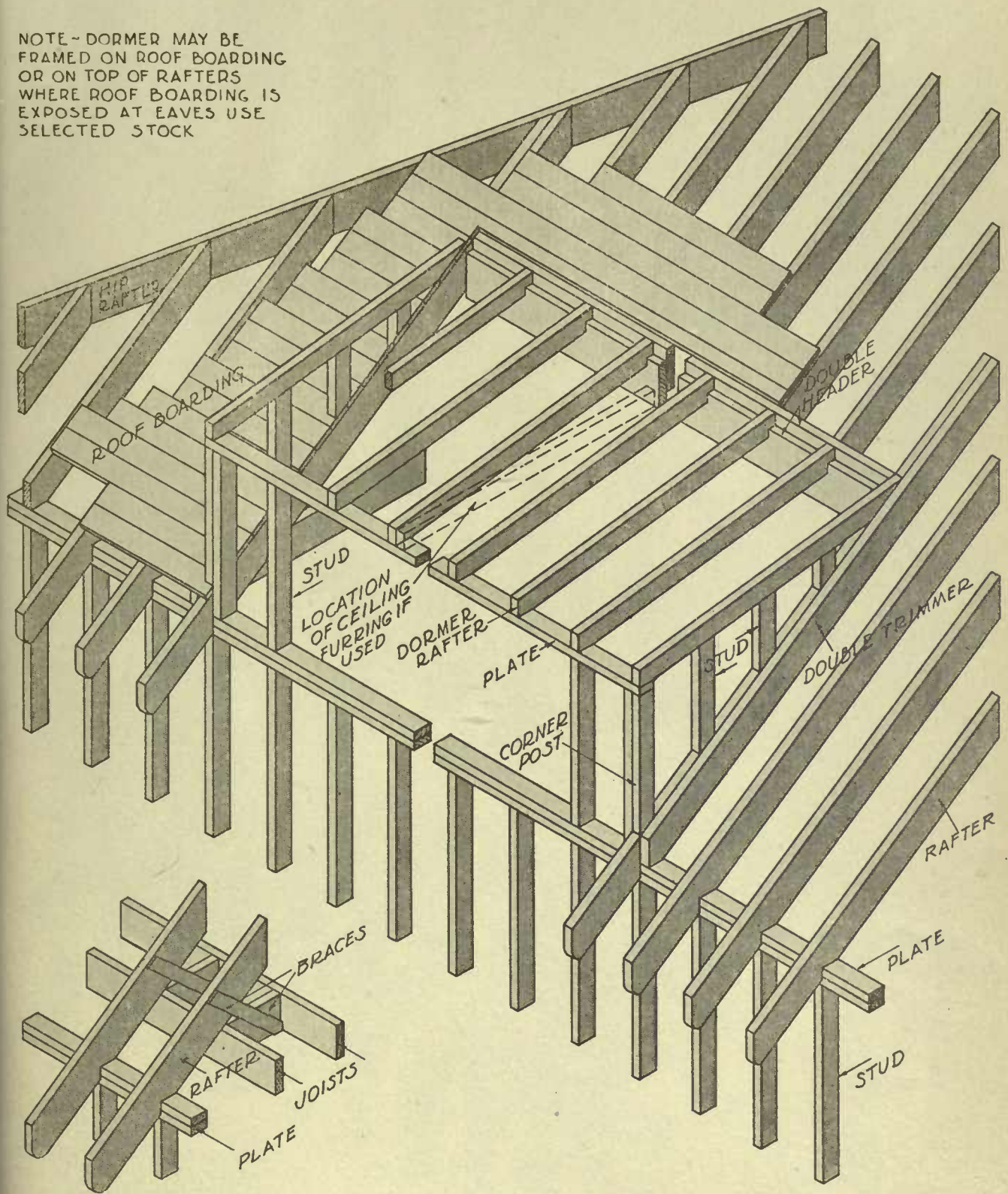


METHODS OF FRAMING STUDS AT PARTITION CORNERS

MEMORANDA


STUD
GIRDER
PLATE
STUD
DETAIL AT "Y"
STUDS
SHEATHING
JOIST
ROOF
RAFTER
PLATE
Y
BLOCK
JOISTS
STUDS
BLOCK
FLOOR JOISTS PARALLEL TO MAIN JOISTS
PLATE
BLOCK
JOIST
SILL
MASONRY WALL
DOUBLE TRIMMER
JOISTS
STUDS
BLOCK
BLOCK
FLOOR JOISTS RIGHT ANGLES TO MAIN JOISTS
DOUBLE HEADER
JOIST
SILL
MASONRY WALL
PLATE
BLOCK
DETAILS OF FRAMING FOR BAY IN DINING ROOM

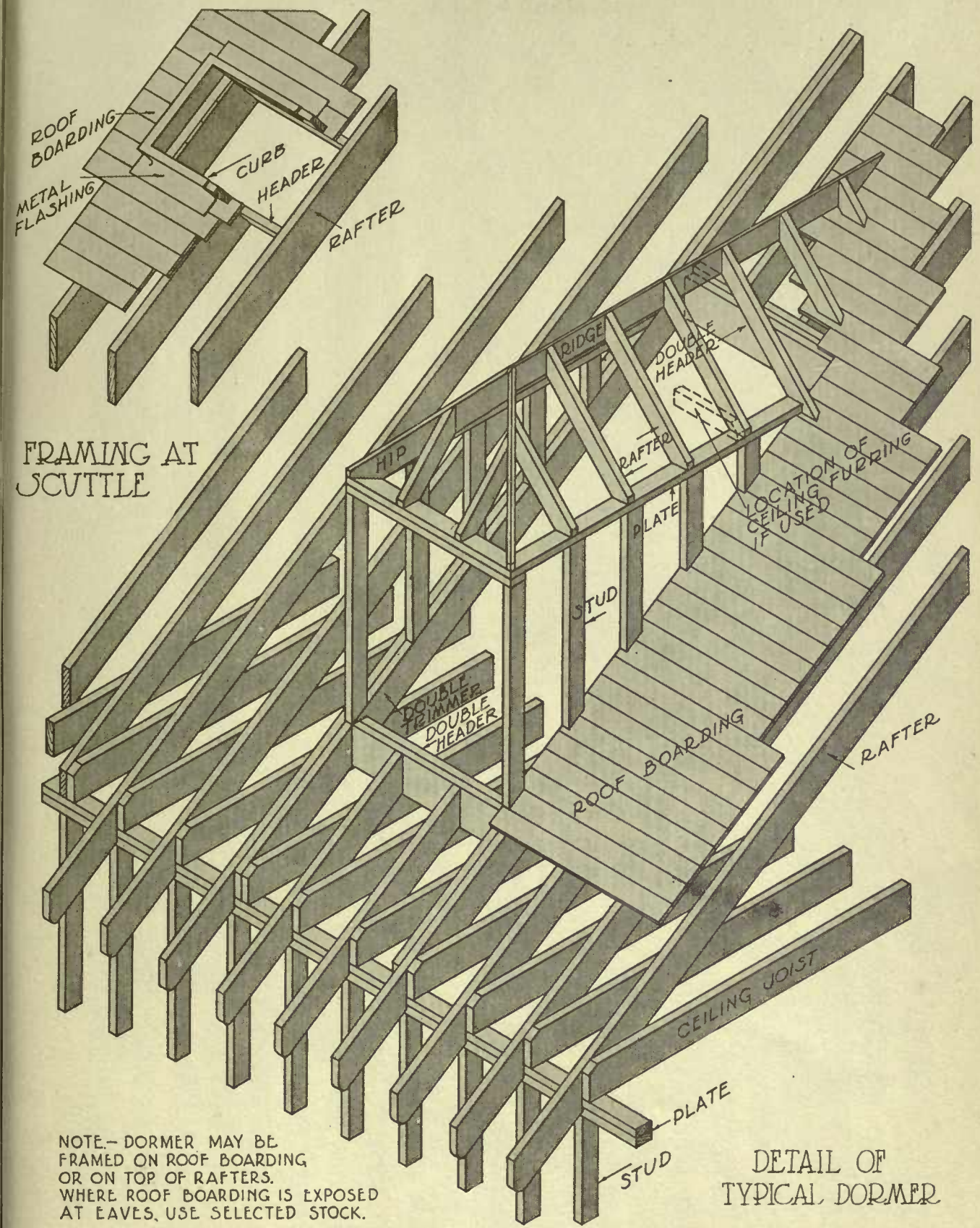
MEMORANDA



METHOD OF BRACING ROOF WHERE RAFTERS ARE AT RIGHT ANGLES TO JOISTS

DETAIL OF DORMER OVER STAIR-HALL

MEMORANDA


ROOF BOARDING
METAL FLASHING
CURB
HEADER
RAFTER
FRAMING AT SCUTTLE
RIDGE
DOUBLE HEADER
HIP
RAFTER
LOCATION OF CEILING FURRING IF USED
PLATE
STUD
DOUBLE TRIMMER
DOUBLE HEADER
ROOF BOARDING
RAFTER
CEILING JOIST
PLATE
STUD
NOTE.– DORMER MAY BE FRAMED ON ROOF BOARDING OR ON TOP OF RAFTERS. WHERE ROOF BOARDING IS EXPOSED AT EAVES, USE SELECTED STOCK.
DETAIL OF TYPICAL DORMER

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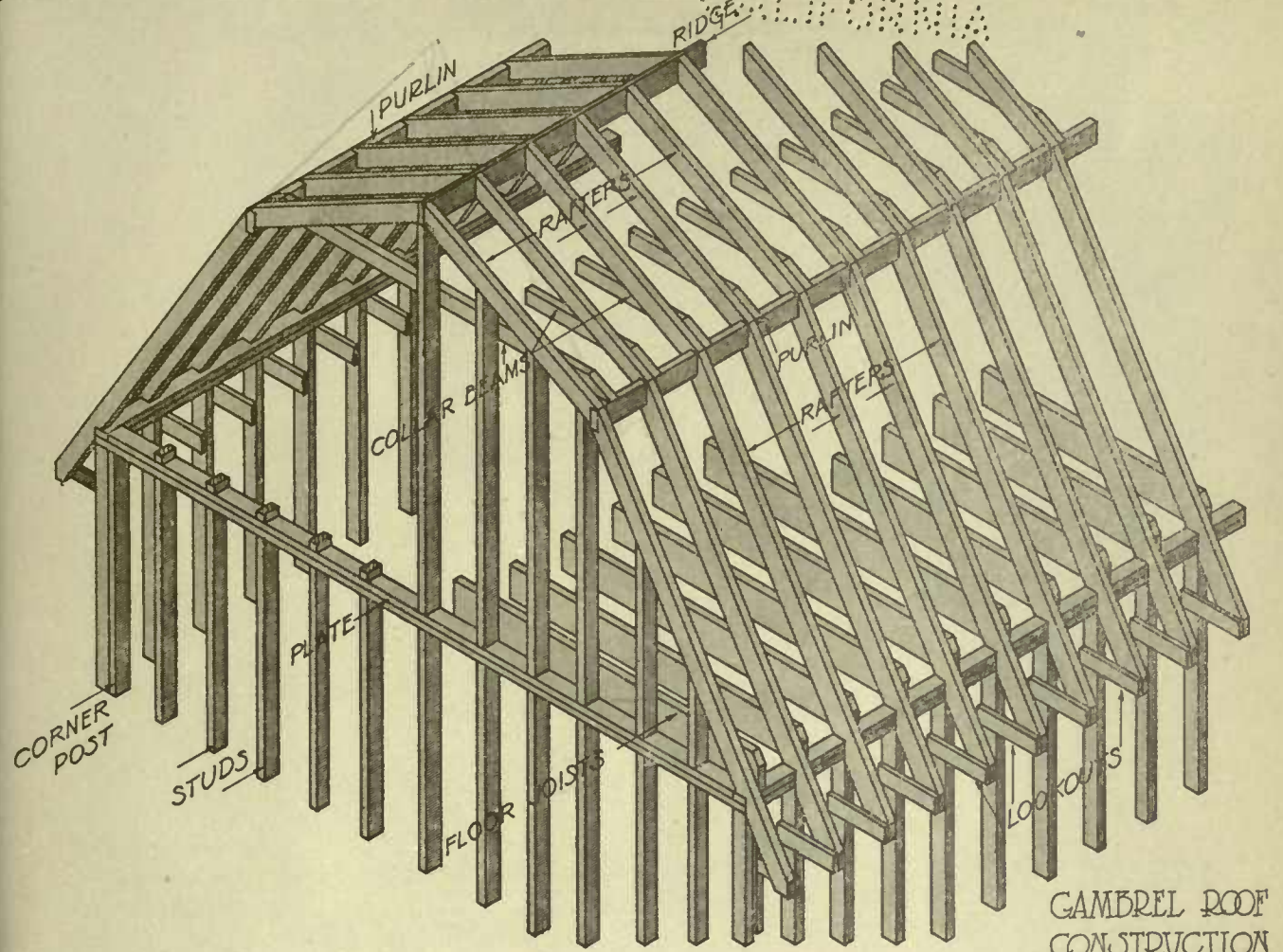
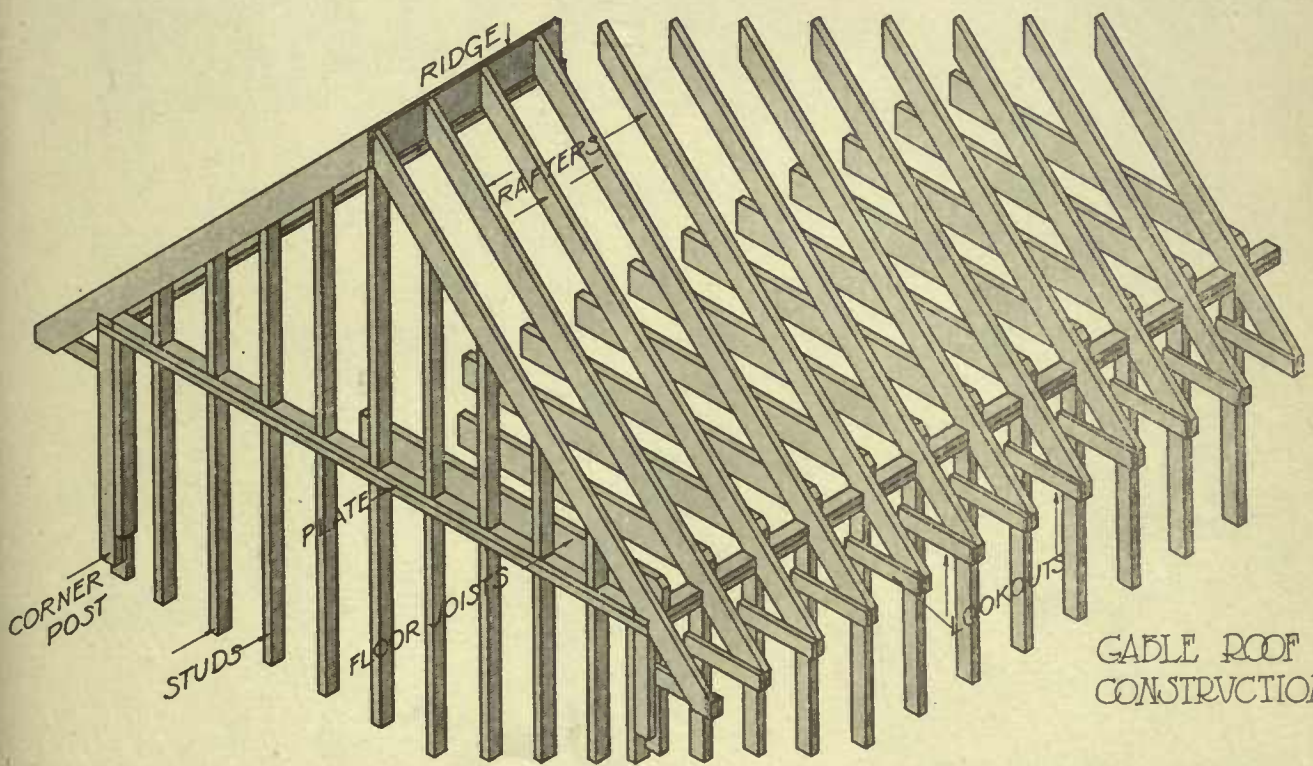


GAMBREL ROOF CONSTRUCTION



GABLE ROOF CONSTRUCTION

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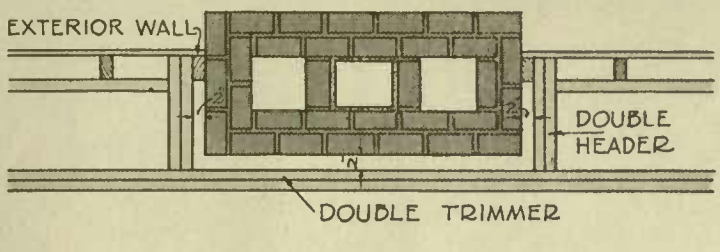
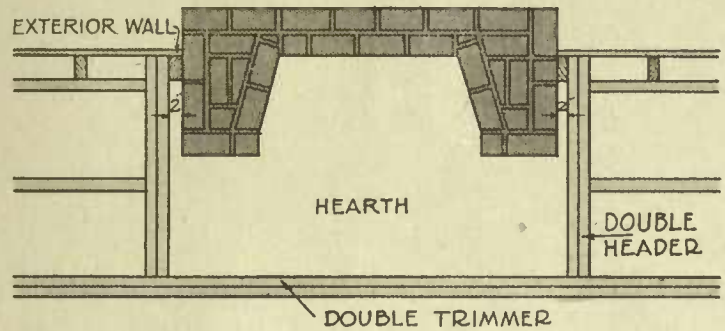
FRAME CONSTRUCTION DETAILS PLATE NO. 25

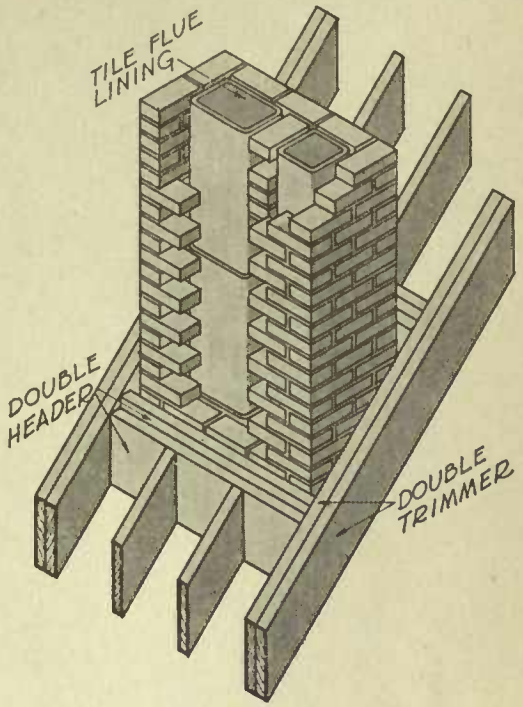
NOTE – SEE NATIONAL LUMBER MANUFACTURERS ASSOCIATION "STANDARD BUILDING ORDINANCE" FOR REGULATIONS REGARDING CHIMNEY AND FIREPLACE CONSTRUCTION.



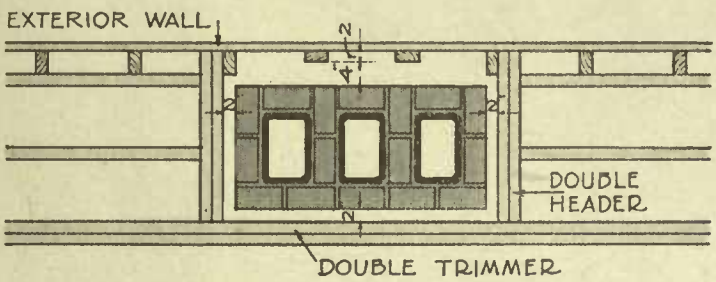
CHIMNEY ABOVE FIREPLACE



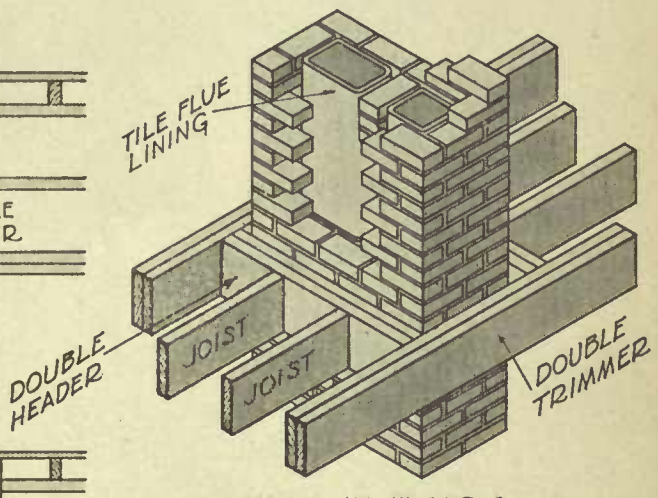
PLAN OF FIREPLACE



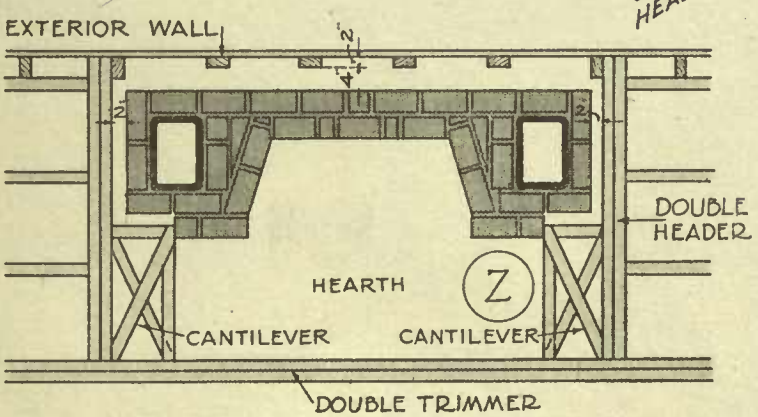
CHIMNEY AT ROOF



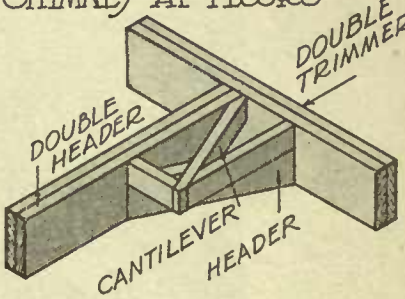
CHIMNEY ABOVE FIREPLACE



CHIMNEY AT FLOORS



ALTERNATE PLAN OF FIREPLACE WITH ADDITIONAL FLUES SHOWN



DETAIL AT Z

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NATIONAL LUMBER MANUFACTURERS ASSOCIATION CHICAGO
ARCHITECTURAL AND BUILDING CODE SERVICE

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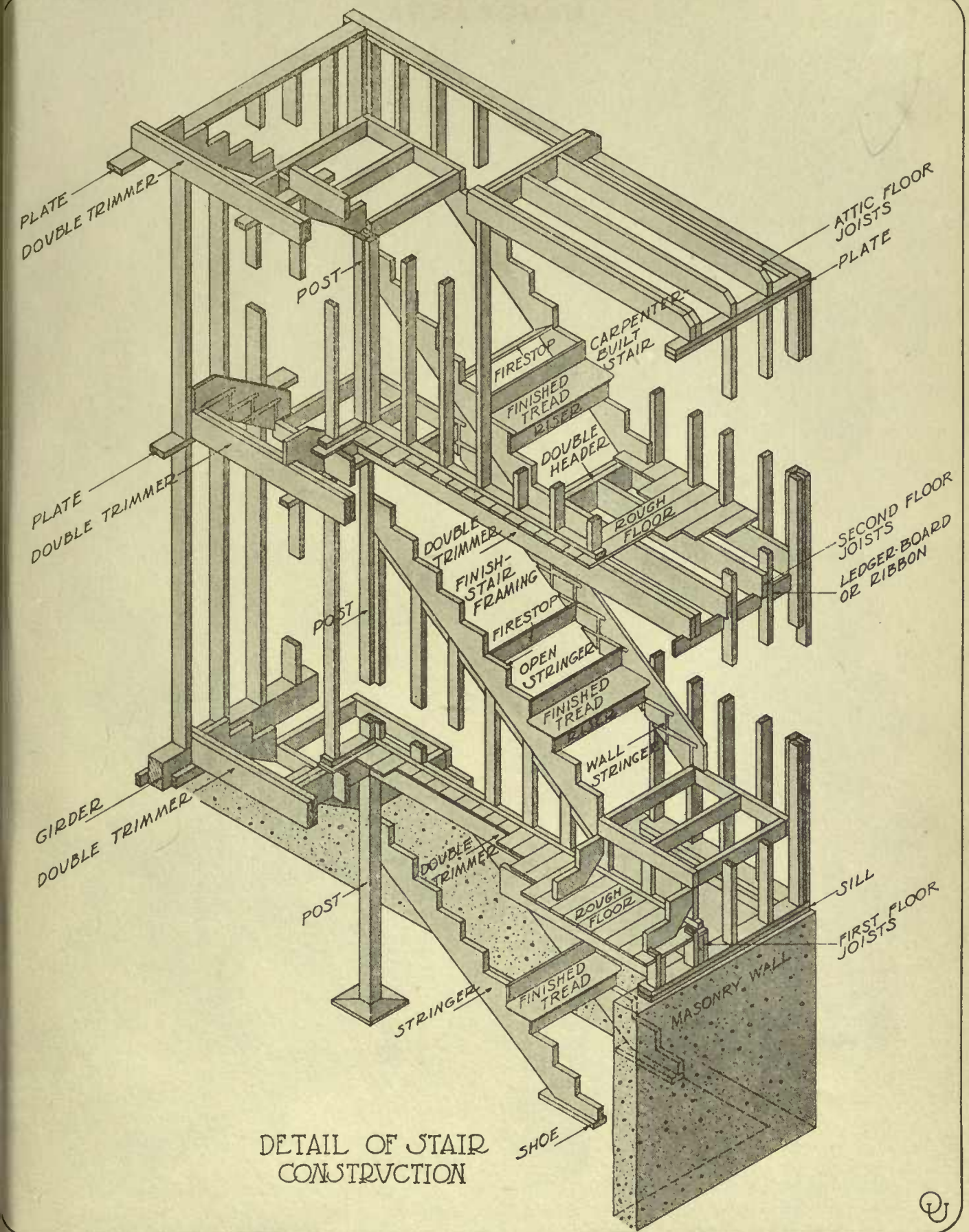
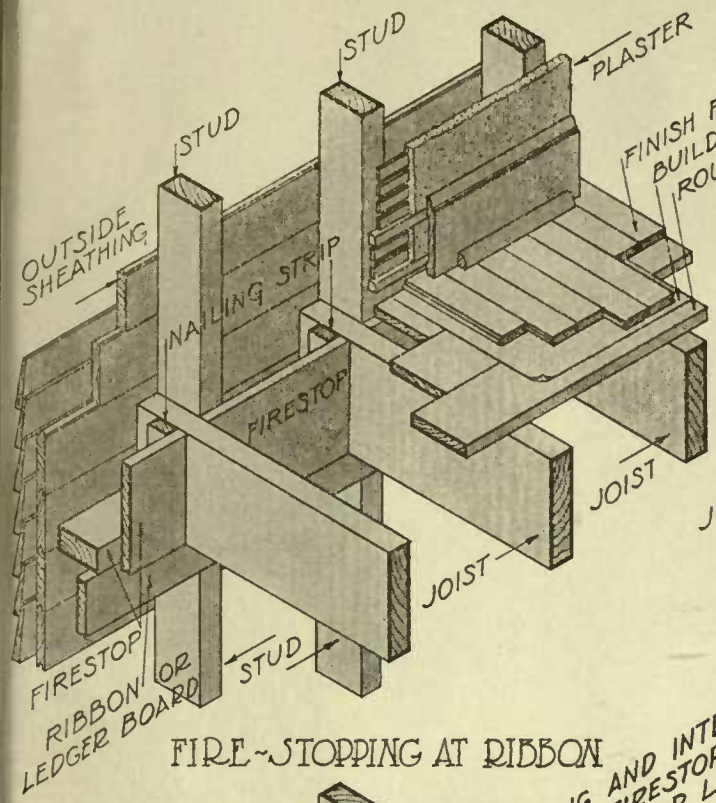
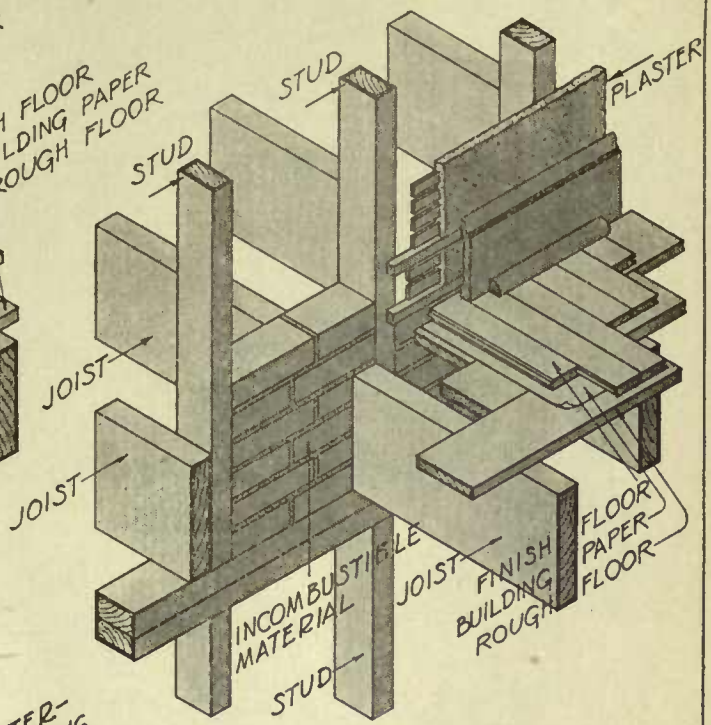


DETAIL OF STAIR CONSTRUCTION

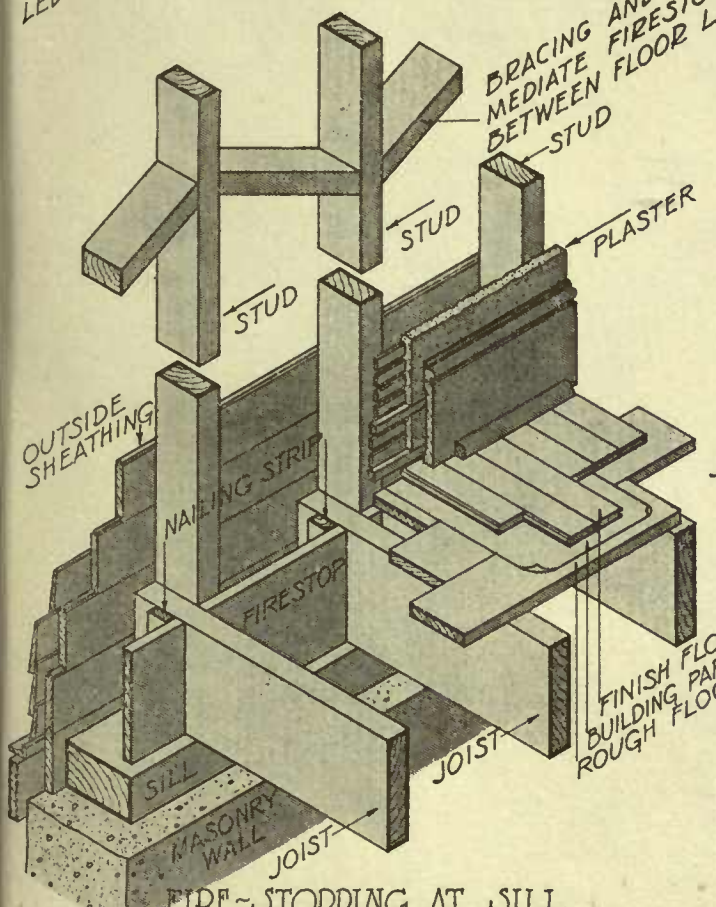
MEMORANDA



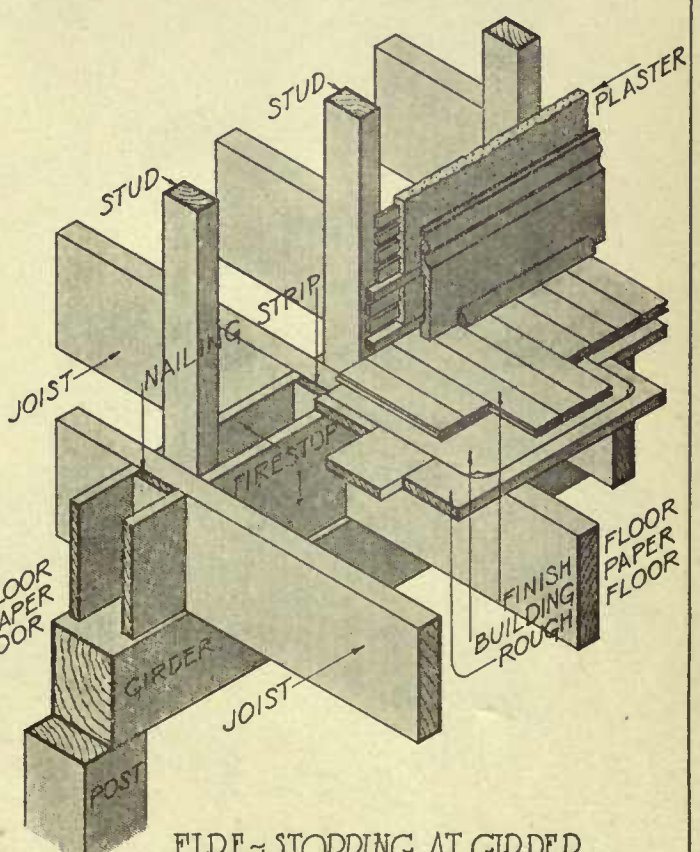
FIRE-STOPPING AT RIBBON



FIRE-STOPPING AT PARTITIONS



FIRE-STOPPING AT SILL



FIRE-STOPPING AT GIRDER

NOTE - EFFICIENCY OF FIRESTOPPING MAY BE INCREASED BY PLACING INCOMBUSTIBLE MATERIAL BETWEEN WOOD FIRESTOP MEMBERS.

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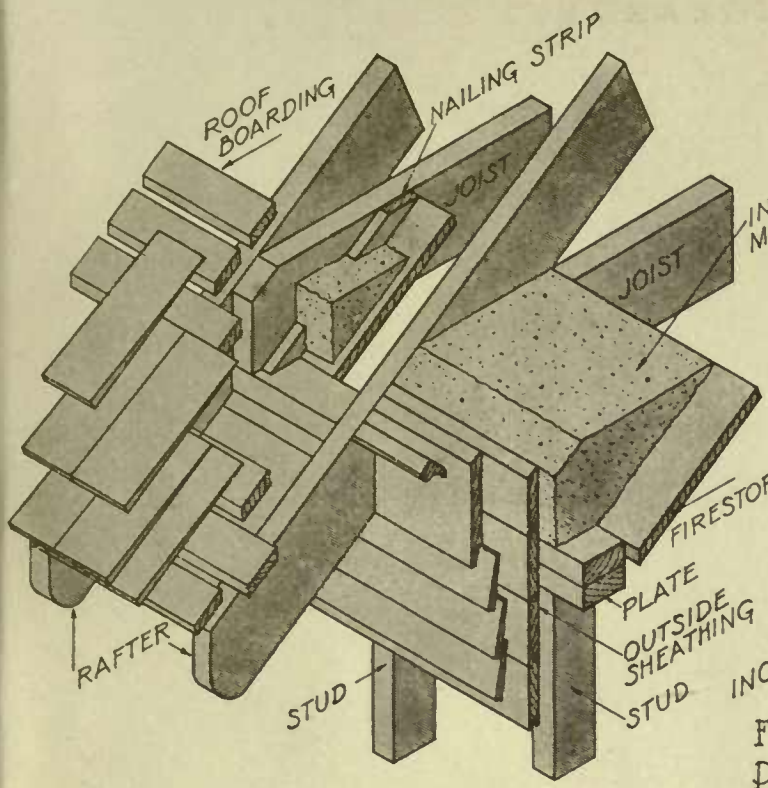
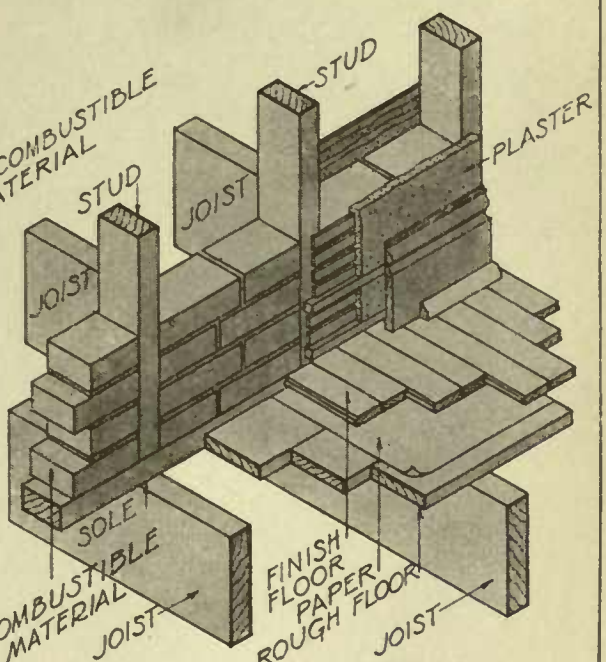
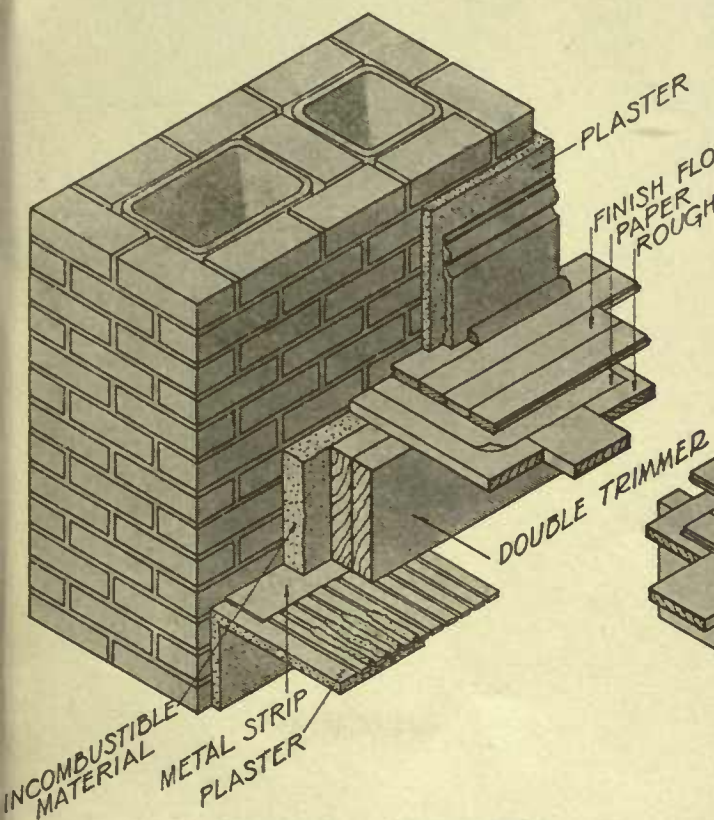


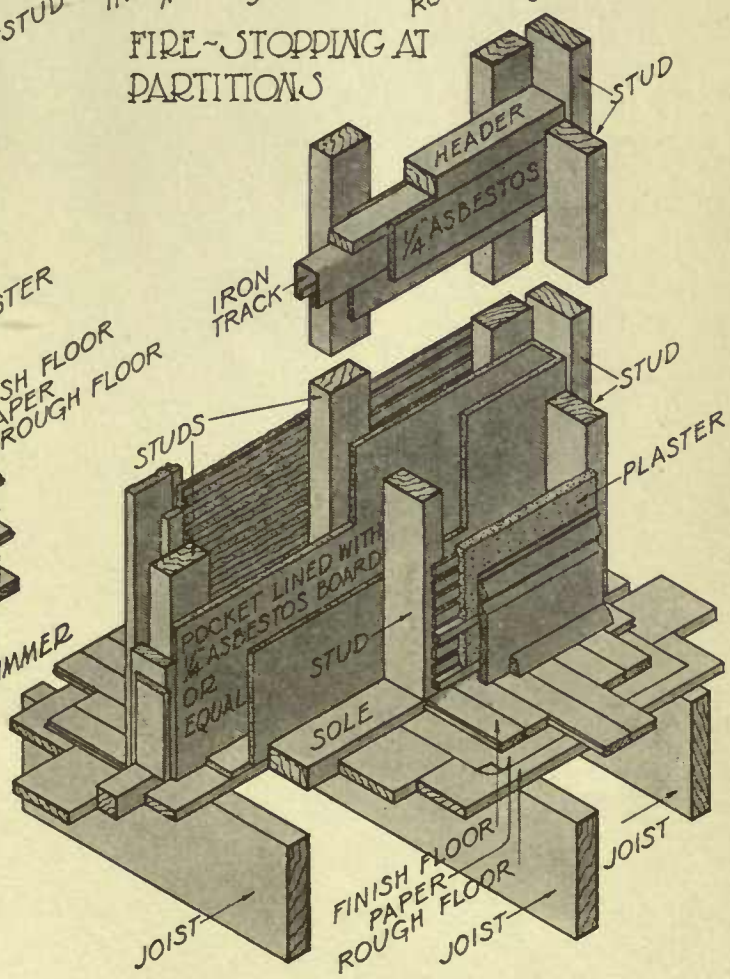
FIRE-STOPPING AT CORNICE



FIRE-STOPPING AT PARTITIONS



FIRE-STOPPING AT CHIMNEY



FIRE-STOPPING AT SLIDING DOOR

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